MARCH 24, 1945

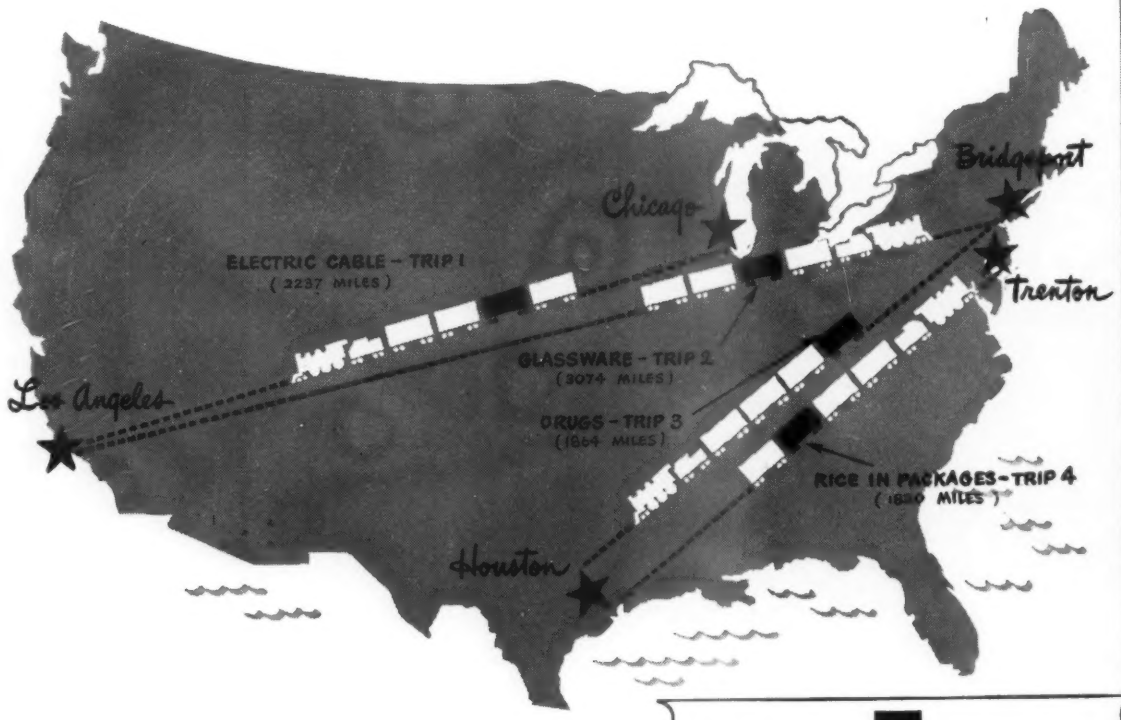
# Railway Age

*Founded in 1856*

# Never an Empty Mile!

## EVANS UTILITY LOADER

## IS DEFINITELY GENERAL PURPOSE EQUIPMENT




UL FOR THE GOOD OF THE RAILROADS

The 9000 mile path of one typical Evans Utility Loader equipped box car. Never an empty mile in three consecutive months of operation!

*BUY MORE WAR BONDS*

## EVANS UTILITY LOADER

Evans Utility Loader equipped box cars have "full-time" war jobs with seldom an idle or empty mile. This is a factor of extreme importance in these days of heavy shipping schedules and increased burdens on America's rolling stock.

The ***general purpose*** feature of the Evans Utility Loader is only one of its many advantages. It increases box car efficiency by putting the full cubic and weight capacity to work on every trip. The car above carried 50% more than average load on each movement.

The Utility Loader has other advantages. It eliminates dunnage that is hard to get—reduces car cleaning time and so permits needed freight cars to be under load instead of on the rip track. It is designed to eliminate ***vertical vibration*** and ***longitudinal shock***; principal causes of damage to goods in ordinary box cars. The profit possibilities of the Utility Loader will interest you.

★ ★ ★

*Vision to Anticipate the Needs of Tomorrow*
*Creates New Industries Today*

C. L. Evans
PRESIDENT

**EVANS PRODUCTS COMPANY**
**DETROIT**

***Evans War Products:*** Machine Gun Mounts • Tank and Automotive Heating and Ventilating Equipment • Evanair Water Heaters • Aircraft Engine Mounts • Airplane Landing Gear Beams • Battery Separators • Prefabricated Houses • Molded Plywood Products • Skyloader • Utility Loader • Auto-Loader • Auto-Railer • Auto-Stop • Stampings • Evanair Domestic Heating Equipment

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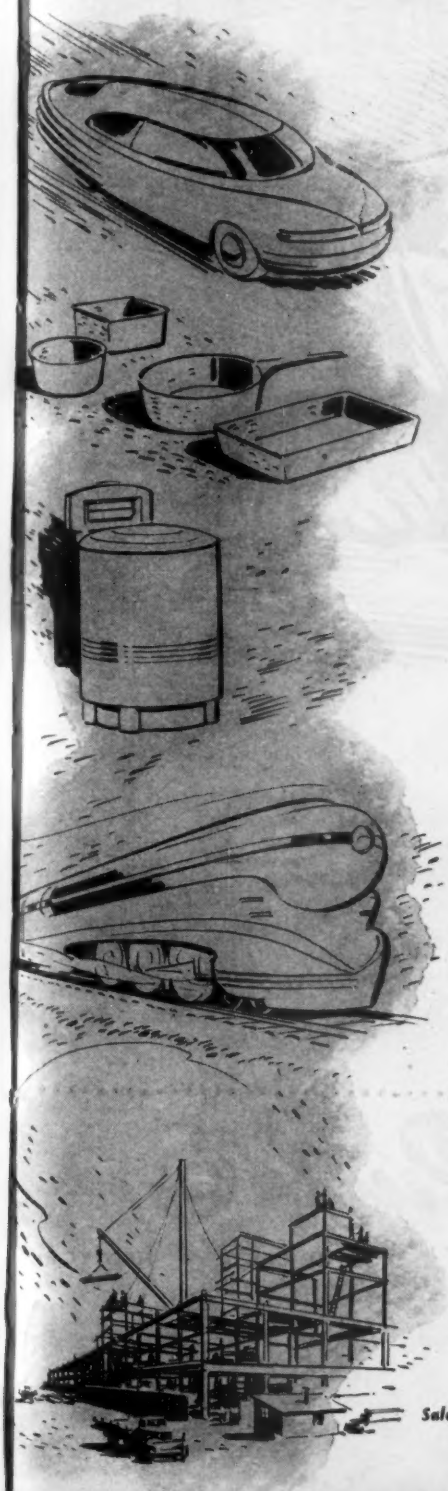
# *Design* —

# For Safety and Dependability With Inland Steel



The buying public has learned to associate steel with safety and dependability. People ride in steel trains over steel rails, live and work in structures made strong with steel, travel the highways in steel automobiles, cross streams on bridges of steel, farm and manufacture with steel equipment, use steel furniture and innumerable household appliances—all with the knowledge that these things, made of steel, cost less, are more durable—have greater strength and safety.

Steel affords strength without excessive volume and weight. It is strong in tension as well as in compression. It quickly recovers from strain, and is resilient under shock. Steel reduces fire hazard to the minimum, and is practically unaffected by climatic conditions. Steel normally resists corrosion and can easily be more fully protected against such action. Steel absorbs neither moisture nor odors.

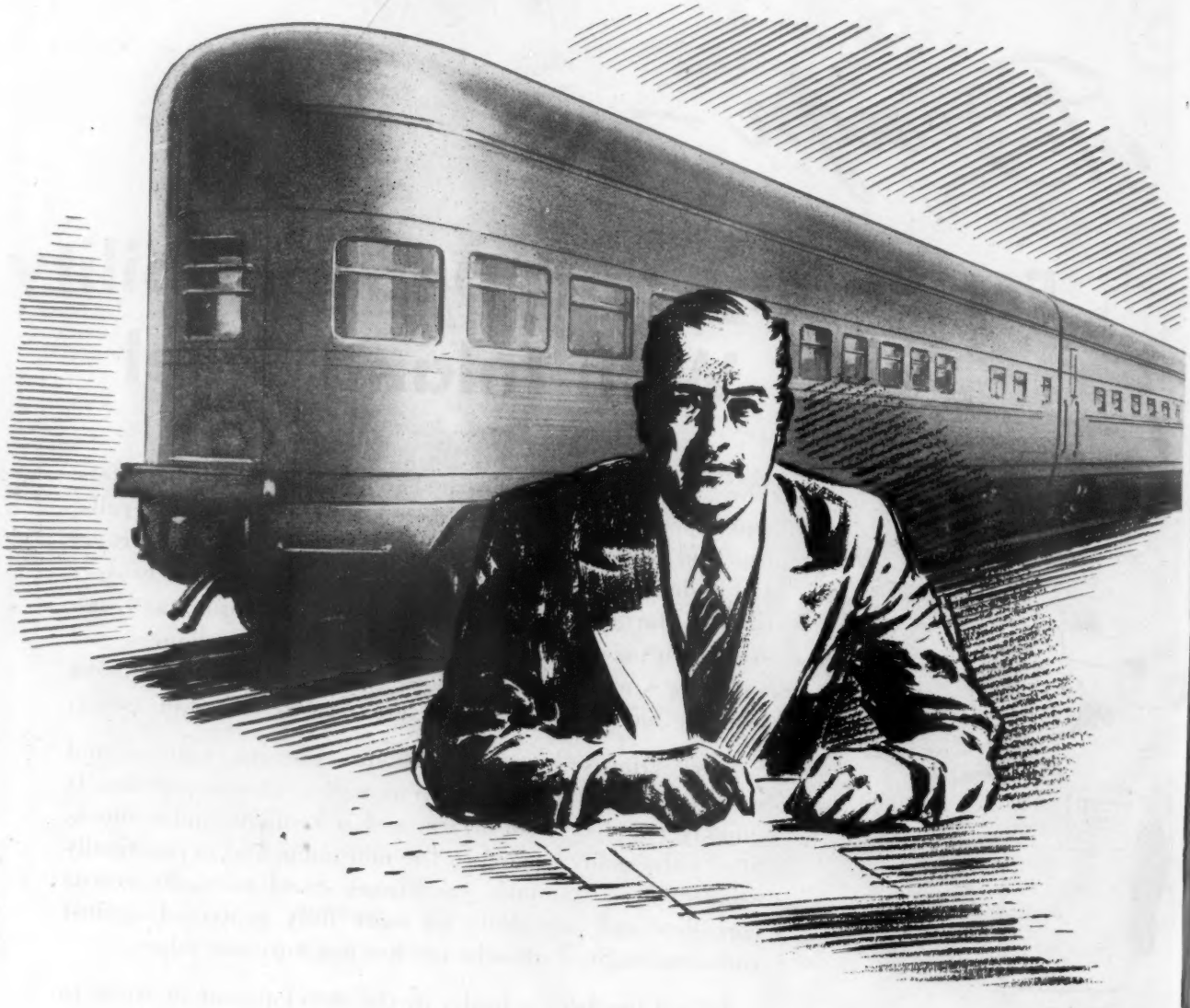
Inland has been a leader in the development of steels to meet changing industrial requirements—has continuously cooperated with industry to make available various physical properties and surface textures that give steel its unsurpassed flexibility in product design and fabrication.

The Inland laboratories and the Inland staff of engineers and metallurgists are at your service to help you meet the design problems of today and of the post-war period. We will be glad to help you on any design, material selection or fabricating problems.


## INLAND STEEL COMPANY

38 S. Dearborn St., Chicago 3, Illinois

*Sales Offices:* Cincinnati • Detroit • Indianapolis • Kansas City • Milwaukee • New York • St. Louis • St. Paul



*Pullman-*

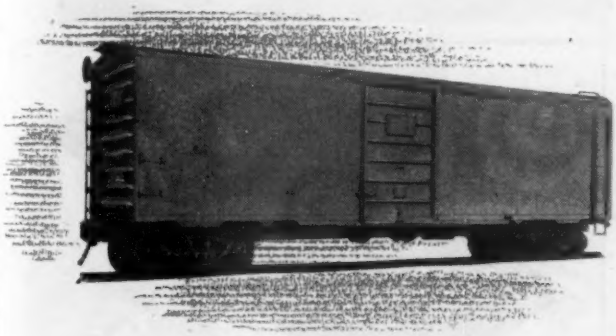
CHICAGO • NEW YORK

# "We will never buy another **heavy weight** car"

The principle that *objects which must be moved should be of light weight construction* is universally accepted.

The availability of alloys after the war will be a force to bring about the more widespread adoption of light-weight structures.

Pullman-Standard recognized the economics of eliminating unnecessary dead weight almost twenty-five years ago and has constructed the great majority of soundly built light-weight cars in this country. For years we have maintained the most advanced facilities for the economical mass production of this type of railway equipment.



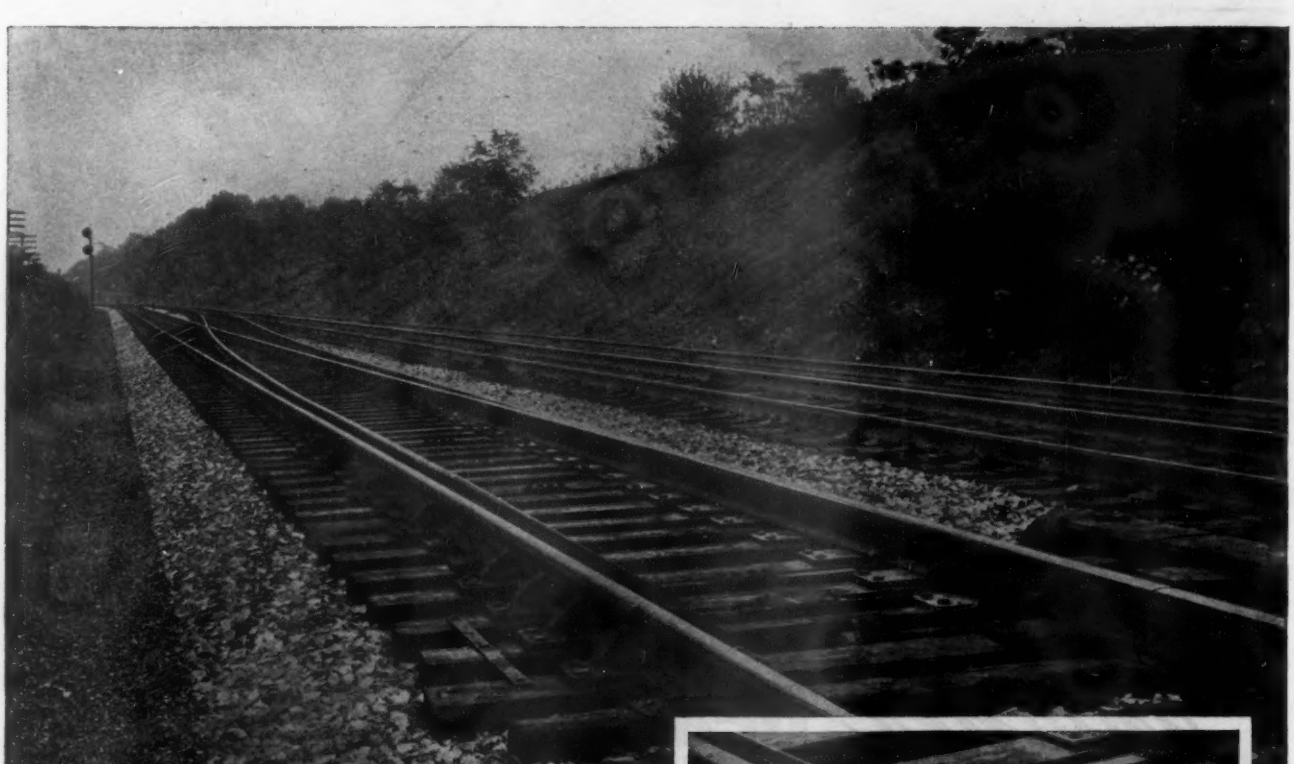
We believe it will not be long before the majority of railway car purchasers will be repeating the statement made by one railway executive in a recent passenger car survey, "We will never buy another HEAVY-WEIGHT car."

*The replacement of many war-worn freight and passenger cars presents an opportunity for materially reducing the load behind the locomotive.*

**Standard CAR MANUFACTURING COMPANY**

CLEVELAND • WASHINGTON, D. C. • PITTSBURGH • BALTIMORE • BIRMINGHAM • WORCESTER, MASS.

*San Francisco Sales Representative, Mark Noble*



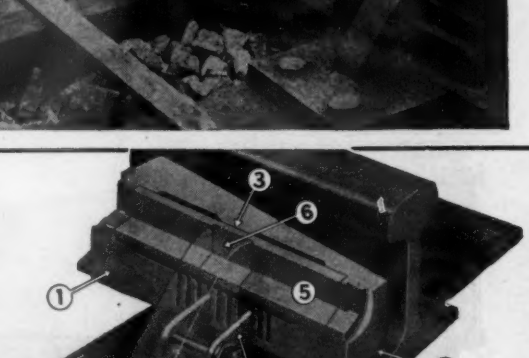
# NEW ADVANCES IN DESIGN MAKE THE 811 RAIL BRACE STURDIER THAN EVER

At turnouts, where side thrust is always a problem, one of the best means of protection is Bethlehem's 811 Spring Rail Brace. It's just about the sturdiest, most practical type of brace that's ever been devised for heavy-duty service.

Recently Bethlehem made a number of improvements in the design of this brace, giving it even greater durability and resistance to shock. The part comprising the brace itself is considerably thicker and more rugged, and is equipped with two heat-treated forged pawls having synchronized action. The wedging device is now a heat-treated forging, and the spring-steel piece which bears against it is fastened by swedging instead of welding.

This complete unit, having only three integral pieces, provides a bracing action which exerts a constant, resistant pressure against side thrust, thereby maintaining gage. The wedge and spring will withstand a pressure of approximately 20,000 pounds per square inch before closing against the stop. This effectively prevents any vibration from loosening the wedge.

The accompanying picture shows several details of the new 811, but we suggest that you also study one of the actual braces, point by point. A Bethlehem engineer will be glad to go over it with you and explain its numerous advantages.




1. Wedge (heat-treated forging). Has a Brinell hardness of about 400.
2. Two pawls (forgings) with synchronized action.
3. Spring compression stop.
4. Back and bottom of wedge shaped to match contour of rail web and flange.
5. Spring steel swedged to wedge.
6. Brace 1¾ in. thick; built at right angles to plane of contacting surface.
7. Switch plate and brace welded together.

BETHLEHEM STEEL

# PLENTY TO DO BETWEEN TRAINS

**You all know the Moffat Tunnel**—bored through a snowcovered range of the Rocky Mountains in 1928. The tunnel and subsequent completion of the Dotsero Cut-off shortened by 173 miles the Denver & Salt Lake City route of the Rio Grande.

Until the Jap sneak attack on Pearl Harbor, that second longest bore in North America—six miles and 200 yards from portal to portal—was doing a swell job. Then the Rio Grande found itself so much in a World War it decided to lay 131-lb. Pennsylvania-type rail in the tunnel in place of the old 112-lb. rails.

**But it could not interfere** with wartime freight movements while laying new rail.

So, Al Perlman, chief engineer, and Ray McBrian, head of research, tackled this problem.

They came out of Rio Grande's Burnham testing laboratory with a perfected, history-making method of rail welding and radiographing.

Division Engineer Frank K. Calkins, Roadmaster C. B. Aydelott, Assistant Roadmaster G. E. Hamilton, and Extra Gang Foreman Calvin Beard of the D. & S. L. Railway then took over.

**Outside the west portal** of the tunnel, they and their men lined up new, standard-length rails into 1000-foot sections, clamped them into position, and welded the joints. There were twenty-three joints per section.

About $10,000 worth of radium was used in taking the X-ray photographs of the joints. Any shadow on the film revealed a flaw. If no flaw appeared, the joint was smoothed by a mechanical trimmer.

**Timing their shifts** to avoid slowing up traffic, dovetailing fast work in short periods, they skidded each welded length into the tunnel, in pairs, on ties, behind a Mallet locomotive.

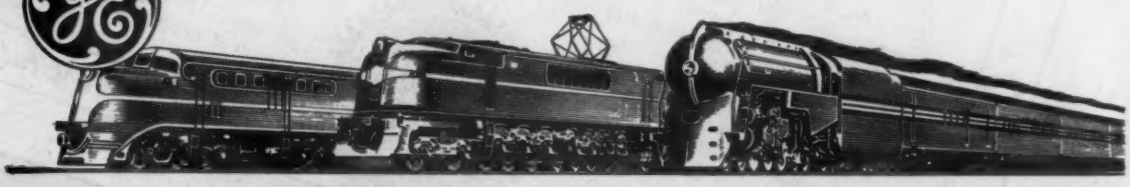
Between December 31, 1942, and January 11, 1943, they thus laid 17,000 feet of new rail in 51 working hours, without delaying a single war train! During the following spring and summer, they completed the job—by far the longest stretch of continuous rail in existence.

**During 1944,** the Rio Grande's west-bound freight through the Moffat tunnel out of Denver totaled 3,780,000 gross tons—a sizeable increase over that of 1942. So far, no flaws or failures in this job have been recorded. And freight tonnage bound for defeat of the Japs gets bigger and bigger as the months go by.

*—The Trackwalker**

★ ★ ★

*The operating records of 16 railroads covering fifty-four 660-hp Alco-G.E. diesel-electrics, over periods as long as eight years, reveal fuel costs that average less than one-third, and maintenance costs that average less than one-half, those of steamers doing similar work.*



**AMERICAN LOCOMOTIVE • GENERAL ELECTRIC**

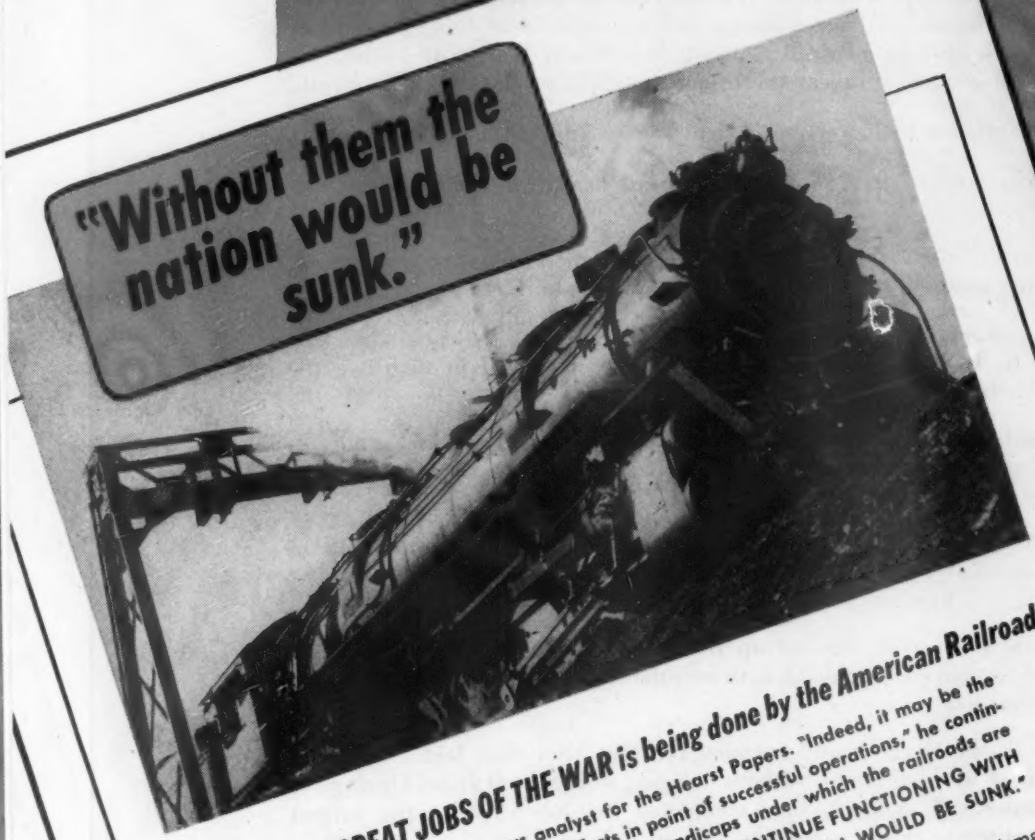


*Reg. U. S. Pat. Off.

119-125-9600

# "Pressed S

CARRY T




**"ONE OF THE GREAT JOBS OF THE WAR is being done by the American Railroads"**

**...says Damon Runyon, noted news analyst for the Hearst Papers. "Indeed, it may be the greatest of all our civilian war efforts in point of successful operations," he continues, "especially when you consider the handicaps under which the railroads are laboring....NEVERTHELESS, THE RAILROADS CONTINUE FUNCTIONING WITH ASTOUNDING EFFICIENCY. WITHOUT THEM THE NATION WOULD BE SUNK."**

THE MISSOURI PACIFIC LINES are playing an important part in "one of the great jobs of the war." In the eleven states they serve are hundreds of war plants, scores of army and navy training centers. Their rails cross vast areas that produce wheat, cotton, corn, cattle, fruits and vegetables. They tap other large areas whence comes the bulk of the nation's oil and timber supplies and still others where mines yield coal and a variety of essential minerals.

★ Troops, munitions, food and fuel! These are our country's answer to the dictators, and they are moving unceasingly and in ever increasing numbers and quantities over the rails of the Missouri Pacific Lines.

**Make your dollars fight — BUY WAR BONDS**

★ Heavy as the transportation demands have been and are, additional ones are certain—demands that must be met with comparatively little additional equipment, for materials necessary for construction of cars and locomotives are held to be more urgently needed for war purposes.

★ But there are no priorities on determination, no bans on willingness or initiative. Missouri Pacific Lines and their more than 40,000 loyal and able employes are pledged to give the government and civilian patrons the best, safest and most dependable transportation service possible. To successfully fulfill that pledge they need—and request—the continued cooperation of shippers and travelers.

*Now, More Than Ever*

MISSOURI PACIFIC LINES

*"A Service Institution"*

# "Steel" Cars

## THE FREIGHT OF FREEDOM

**In the eleven important states served, the Missouri Pacific Lines are speeding the freight of Freedom to hundreds of war plants, army and navy training centers and ports. This road is carrying vital materials, food and fuel from vast areas of wheat, corn, cotton, fruits vegetables, timber, coal and oil.**

**Dependable transportation has never been so vital and more reliable in all history. And never has Pressed Steel Car built finer freight cars. Incorporating advanced engineering and improved car construction, Pressed Steel's cars provide greater strength, durability, economy and safety at greater speeds. That's why they are so dependable, even under this grueling war-service punishment.**

**PRESSED STEEL CAR COMPANY, INC.**

NEW YORK • PITTSBURGH • CHICAGO

# How UP-TO-DATE are

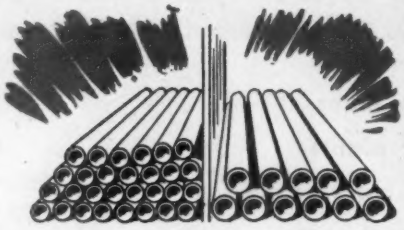
## REYNOLDS: Answer to Industry's No. 1 Question

**Today . . .** With R301 and the other new high-strength alloys, aluminum combines light weight, corrosion-resistance *and great strength* . . . extends farther and farther the rapidly widening field of its usefulness.

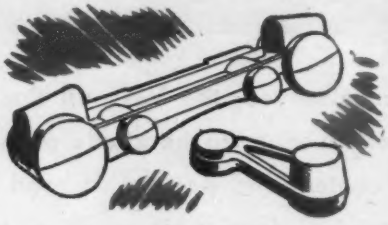
**Today . . .** To known prewar facilities Reynolds adds a great new independent source of supply and service . . . mines . . . manufacturing plants in the great industrial areas.

*Never again need America face the danger of aluminum scarcity and high prices.*

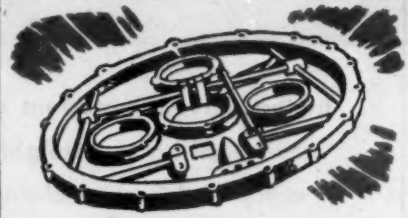
**Sheet and Plate.** Standard gauges, sizes and alloys. Many special items.



**Tubing.** Seamless. Closely controlled as to quality and dimensions.



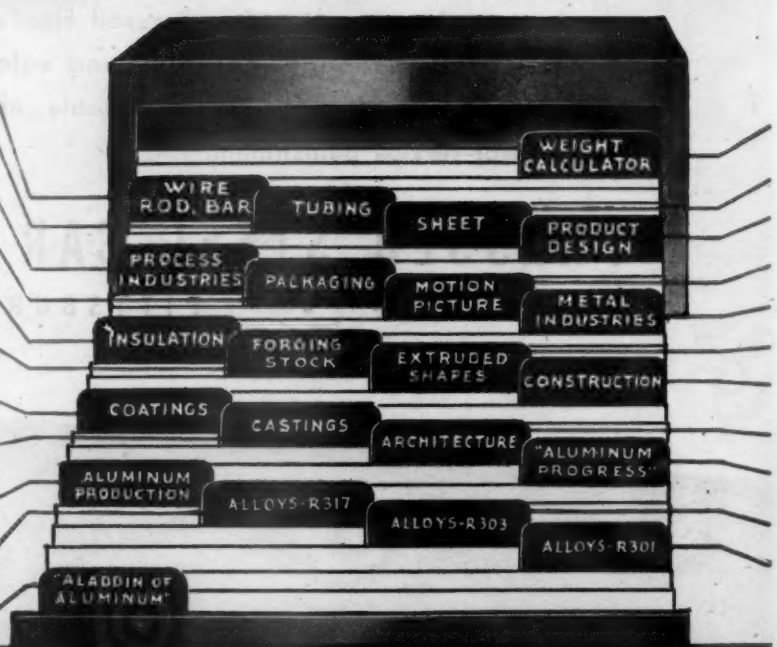
**Forgings.** Production capacity—up to 2,000,000 units per month.



**Castings.** Permanent mold and sand. Produced in one of industry's most modern plants.

## BULLETINS ... CATALOGS ... OTHER MATERIAL ...

1. **Wire, Rod, Bar.** (Bulletin 31-A.) Specifications, ordering data, etc. 12 pages.
2. **Tubing.** (Bulletin 17-A.) Specifications, ordering data, etc. 8 pages.
3. **Process Industries.** "Reynolds Aluminum, its New Importance in Processing Operations." (Catalog 102.) 8 pages. (Now on press.)
4. **Packaging.** Bulletin on protective metal packaging for military and civilian application. 4 pages.
5. **Insulation.** Bulletin on types and applications of reflective metal insulation.
6. **Forging Stock.** (Bulletin 23-A.) Ordering data. 8 pages.
7. **Coatings.** Forms, applications, evaluation, etc. Powders and Pastes. (Bulletin 21-A.) 20 pages.
8. **Castings.** Descriptive bulletin of Reynolds facilities for sand and permanent mold castings. (On press.)
9. **Aluminum Production.** "From Bauxite to Rolled Metal," story and flow diagram of world's only complete aluminum plant. 8 pp.
10. **Alloys—R317.** A new free machining strong aluminum alloy.
11. **"Aladdin of Aluminum."** A Reader's Digest reprint, giving background story of Reynolds growth.




REYNOLDS METALS

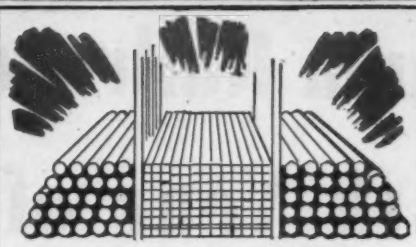
# REYNOLDS ALUMINUM

*The Great New Source of*

INGOT • SHEET • SHAPES • WIRE • ROD • BAR • TUBING • PLATE • FOIL • CASTINGS • TOOLS • FORGINGS

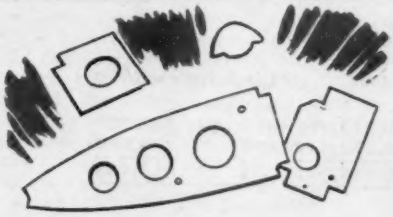
# you on ALUMINUM?

**Wire.** Cross-sections less than ⅜ inches. Also finished rivets.



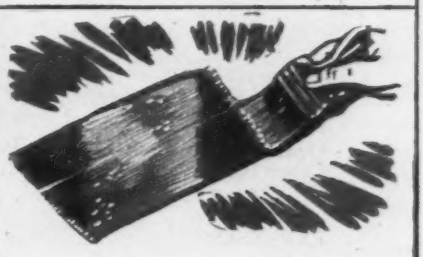
**Rod and Bar.** Sizes from ⅜ inches to 8 inches for forging and machining.

**Shapes.** Rolled and extruded sections to fulfill individual needs.



**Parts.** Fabrication at aluminum source saves manpower, plant space, scrap and transportation.

**Foil.** For years the largest producer of light gauge aluminum for packaging, technical and insulation purposes.



**Powders and Pastes.** For aluminum coatings.

## CONCISE, AUTHORITATIVE

12 **Weight Calculator.** Slide rule for determining weights of all commonly used metals.

13 **Sheet.** (Bulletin 22-A.) Specifications, ordering data, etc. 8 pages.

14 **Product Design.** "Reynolds Aluminum, its Important Role in Tomorrow's Products." (Catalog 100.) 16 pages.

15 **Motion Picture.** "A Recital of Faith." The story of aluminum production. 16mm and 35mm. Available to interested groups.

16 **Metal Industries.** Cond. Catalog of Reynolds products and services for Metal-Working Industries. Properties, applications. 8 pp.

17 **Extruded Shapes.** (Bulletin 35-A.) Specifications, ordering data, etc. 8 pages.

18 **Construction.** "Reynolds Aluminum, its Important Role in Modern Engineering." (Catalog 103.) 12 pages.

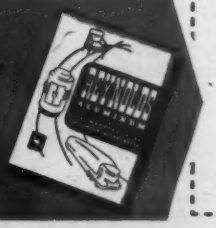
19 **Architecture.** "Reynolds Aluminum, its Important Role in Architecture." (Catalog 104.) 12 pages.

20 **"Aluminum Progress."** Bi-monthly, non-technical news bulletin of general interest.

21 **Alloys—R303.** A new aluminum alloy of highest strength and excellent corrosion resistance. (Bulletin 55-A.) 8 pages.

22 **Alloys—R301.** A new high strength aluminum alloy. Sheet and plate. (Bulletin 50-A.) 8 pages.

## DON'T MISS THIS!




"Reynolds Aluminum, its Important Role in Tomorrow's Products," is of direct interest to every one concerned with design and production. 16 pages packed with useful information. Check No. 100 in coupon at right.

## REYNOLDS:
## Source of valuable technical knowledge

**To the sum total** of metallurgical knowledge Reynolds Metals has added much vital data . . . experience gained in pioneering new fields of aluminum production and product development—the use of improved machines and processes in the world's largest mills—the creation of new alloys, promise of even greater things to come.

From this background accomplishment, Reynolds is prepared to cooperate directly . . . prepared to offer its service to manufacturers with major problems to solve.

**Much technical material** is available upon request. Check the catalogs and bulletins desired. Write in detail concerning any special question. Reynolds Metals Company, Aluminum Division, 2530 S. Third Street, Louisville 1, Ky.

**FREE** Many of the bulletins and catalogs listed on the opposite page belong in your files. Please use coupon below in ordering.

**Keep your dollars fighting . . . BUY MORE WAR BONDS**

## FILL OUT . . . MAIL TODAY!

7351-A1-2

**Reynolds Metals Company**
**Aluminum Division**
**2530 South Third Street, Louisville 1, Kentucky**

Send *post-free* material which I have checked below:

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| 19 | 20 | 21 | 22 | | | | | | | | | | | | | | |

NAME_____

TITLE_____

FIRM_____

STREET_____

CITY_____ ZONE_____ STATE_____

# Pennsylvania Railroad Reports on its 98th Year of Service

## INCOME STATEMENT

| | 1944 | Comparison with 1943 |
|---|---|---|
| **INCOME:** | | |
| Operating Revenues—Freight, Passenger, Mail, Express, etc. | $1,010,015,912 | I $30,242,757 |
| Other Income—chiefly dividends and interest on securities owned | 39,272,649 | D 3,230,869 |
| Total | 1,049,288,561 | I 27,011,888 |
| **EXPENSES:** | | |
| Operating Expenses | 736,318,745 | I 72,808,034 |
| Taxes | 152,838,409 | D 27,567,082 |
| Equipment and Joint Facility Rents | 11,886,692 | I 3,576,150 |
| Other Charges—chiefly rentals paid for leased roads and interest on the Company's debt | 83,524,284 | D 1,107,161 |
| Total | 984,568,130 | I 47,709,941 |
| Net Income | 64,720,431 | D 20,698,053 |
| **DISPOSITION OF NET INCOME:** | | |
| Appropriations to sinking and other funds, etc. | 3,244,558 | I 1,320,439 |
| Retirement of Debt—Penna. R.R. Co. | 18,767,970 | I 1,456,970 |
| Dividend 5% ($2.50 per share) | 32,919,385 | — |
| Transferred to credit of Profit and Loss | 9,788,518 | D 23,475,462 |

### *RESULTS FOR THE YEAR*

Business continued at a very high level during 1944, the volume being the largest in the Company's history. Operating revenues for the first time in almost one hundred years of operation amounted to over one billion dollars. Notwithstanding the unprecedented demands for transportation service, the Company's operations were performed as well as, if not better than, in any of the previous war years.

While operating revenues increased $30,242,757, due to the greater volume of traffic, this was more than offset by an increase of $72,808,034 in operating expenses, caused principally by the full effect of the wage increases referred to in the 1943 report, increased costs of material and fuel, and the cost of handling the larger volume of business. Taxes remained abnormally high. As a result, even though the volume of business was greater than in any year in the Company's history, Net Income of $64,720,431 was $20,698,053 less than in 1943, and $36,748,362 less than in 1942. Notwithstanding this fact, the dividend paid in 1944 was maintained at the same rate paid in 1943 and 1942, or 5% ($2.50 per share).

The management looks forward with confidence that the Company will continue to serve the country successfully in 1945 while planning for the time when the economic changes brought about by the end of the war will have to be met and new standards of peace-time transportation established.

### *WAR TRANSPORTATION*

The performance of the American railroads in meeting the unprecedented demands upon them for transportation service in these war years has been widely commended. They have not only carried the enormous war-time load that would normally move in railroad service, but they have also moved the immense volume of traffic which has been forced off the highways by fuel, vehicle and tire shortages, together with practically all of the traffic formerly moving in coastwise and intercoastal shipping.

Their ability to render satisfactory service during this period of record-breaking traffic was due primarily to the fact that all through the depression from 1932 to 1939 the railroads, both individually and collectively, had been developing improved transportation methods and facilities and building up a central organization to meet war-time emergencies.

The enormous volume of traffic incident to the war effort concentrated on the railroad, which serves the largest centers of population and industry east of the Mississippi River, and reaches the Great Lakes and the Atlantic Seaboard, has been handled only because the Company, through the war years, has at great expense, added to its plant and equipment.

### *TAXES*

Railway taxes of the Company for 1944 (federal income taxes, excess profits taxes and other federal, state and local corporate and property taxes), amounted to $126,034,483. They were, with the exception of 1943, the highest in the history of the Company. These taxes, together with Unemployment Insurance taxes of $12,862,679, and Railroad Retirement taxes of $13,941,247, aggregated $152,838,409.

All taxes required 15.2 cents out of each dollar of operating revenue, the equivalent of 23.3% upon the capital stock, or $11.63 per share. The extent of the tax bill in 1944 is well indicated by the fact that taxes took about 70 cents out of every dollar left after paying operating expenses and other charges.

The railroads are taxed not only by the Federal Government and the various States, but by many of the counties, cities and other municipalities they serve. These taxes, which the railroads have borne for many years at ever increasing rates, together with all other kinds of taxes, principally the heavy Income and Excess Profits Taxes, have reached the point where practically all of the so-called large profits of the railroads during the war period have been and are now being drained off in taxes.

The result is that the railroads have been unable to create the reserves that should be provided, in fact should be required, for rehabilitation after the war.

### *REDUCTION OF FUNDED DEBT*

Substantial reductions in the outstanding debt in the hands of the public continued during the year, the debt of System Companies being reduced $31,283,927. The debt

of the System in the hands of the public shows a net reduction of $138,000,000 during the last five years.

### *REFINANCING OF BONDS*

Refunding operations, detailed in the report, have resulted in calling for redemption, during 1944 and so far this year, four issues of bonds totalling $140,735,000, while new issues, totalling $129,735,000, and bearing lower rates of interest, have been sold to provide funds for the redemptions. These transactions insure ultimate savings of approximately $61,000,000. In addition, refunding operations of three terminal companies, jointly owned with other railroads, will produce ultimate savings to the Pennsylvania of approximately $9,200,000.

### *ADDITIONS AND BETTERMENTS*

The continuance of traffic at an unusually high level necessitated every effort to further increase the railroad's capacity, which involved large expenditures for improvements and additions to road and equipment that would not have been necessary except for the war.

Despite the urgent need for increased passenger carrying capacity, it was impossible to acquire any new passenger cars due to the continuance of restrictions resulting from the extraordinary war-time demands for critical materials. It is hoped that this situation may improve during 1945.

### *RESEARCH*

Through research, the railroads of the country have kept in the forefront of technological progress. They have not only been continuously engaged in original work of their own, but have also intensively followed the development of every branch of science and engineering for discoveries and advances adaptable to railroad use. To the railroads, research means the organized, scientific endeavor constantly to provide better equipment, facilities and methods of operation, and to improve those already in use. They conduct research individually, as separate companies, collectively through the Association of American Railroads, and cooperatively with equipment manufacturers and others in all fields.

### *RAILROAD SOCIAL SECURITY*

The pension, the security in old age for life's work well done, has been one of the principal rewards for service with the Company since the turn of the century. To the employe, the pension stands next in importance to the job itself. There now has been introduced in the Congress legislation which would intermingle with the pension plan, as it now exists, other forms of social security of unknown soundness which would result, in the judgment of the management, in undermining the existing plan to the detriment of the employes—a situation which the management thinks, from the standpoint of both the employes and the stockholders, would be most unfortunate.

### *THE EMPLOYES*

The Board takes pleasure in acknowledging the continued loyalty and efficiency of the employes, who have supported the war effort in full, and cooperated wholeheartedly and effectively with the management.

The employes have served their Country and their Company well. Since the beginning of the war, 51,559 have gone into the Armed Forces, 614 have given their lives.

The management gratefully acknowledges the efficiency of the more than 21,000 women who have come into the service of the Company so that men could go to war.

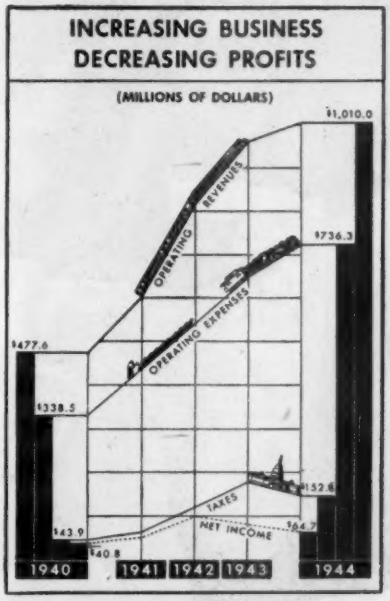
A remarkable job has been done by these employes—continuously now for five years—and it is to the lasting credit of these men and women who staff and operate the railroad that they have never failed to meet their responsibilities in all the problems that have confronted the railroad.

### *STOCKHOLDERS*

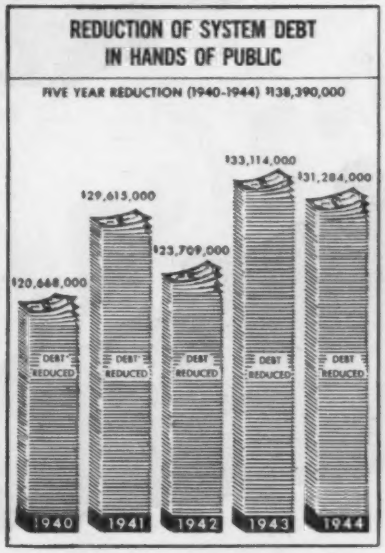
The Capital Stock of the Company at the close of the year was owned by 213,121 stockholders, an increase of 3,503 compared with December 31, 1943, with an average holding of 61.8 shares.

The management is always appreciative of the cooperation extended by security holders, the public and employes, and recognizes its responsibility to keep them informed as to the Company's business, service, finances and other important matters.

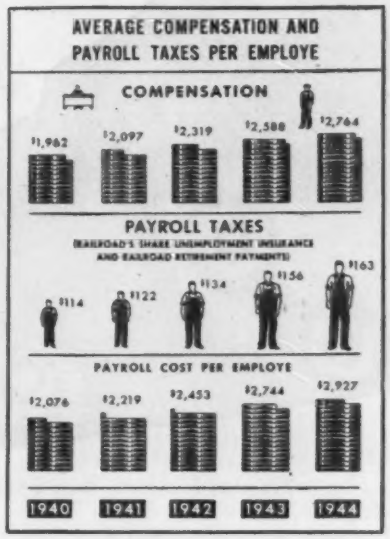
M. W. CLEMENT, *President.*




Even though the volume of business was greater than in any year in the Company's history, Net Income of $64,720,431 was $20,698,053 less than in 1943, and $36,748,362 less than in 1942.




The 1944 net reduction of the debt of the Pennsylvania Railroad System in the hands of the public amounted to $31,283,927. Over the last five years the net reduction has been $138,000,000.




The chart shows the steady increase in the average compensation per employe of the Pennsylvania Railroad, and in the railroad's share of unemployment insurance and railroad retirement payments over the past five years.

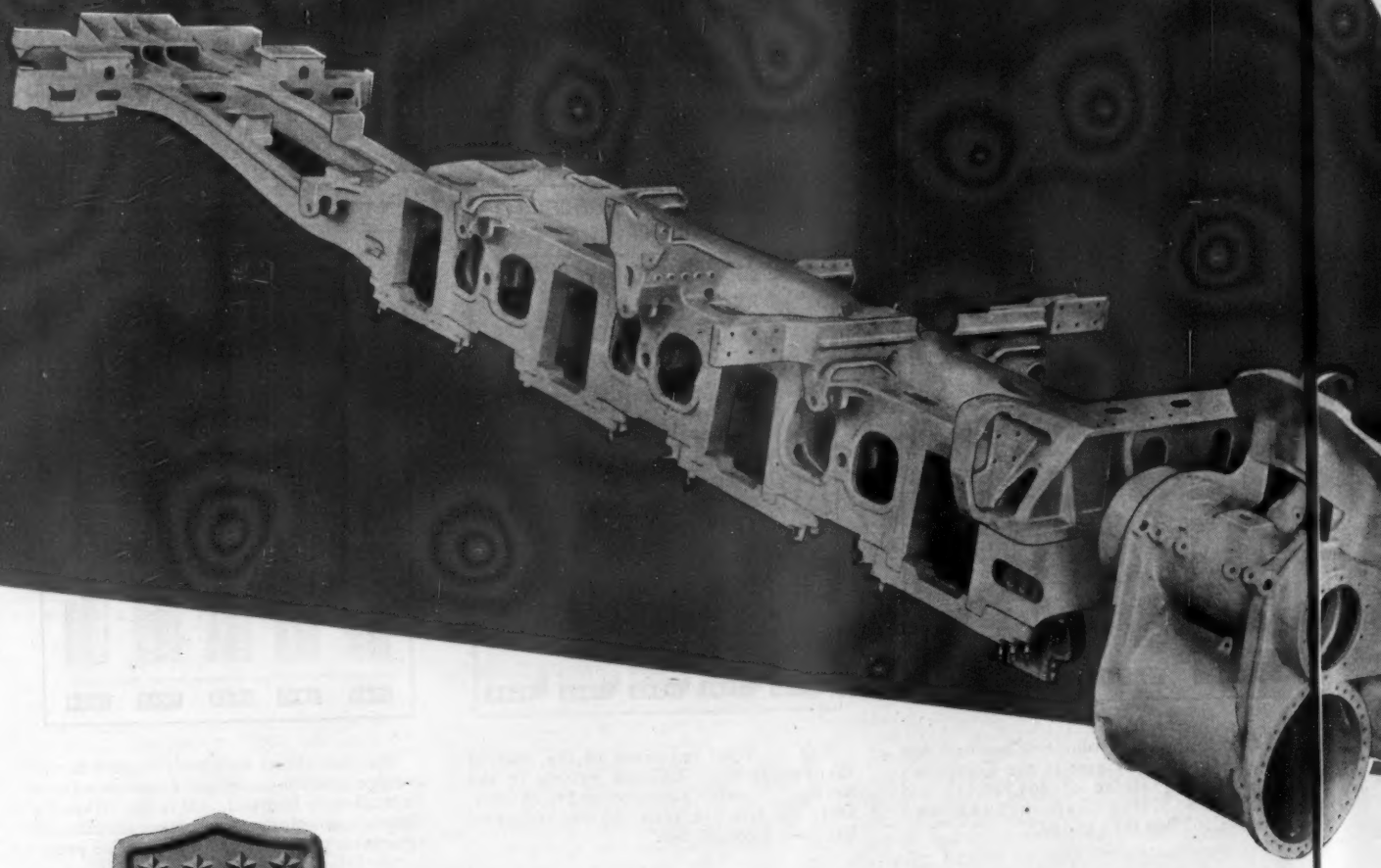
# THE PENNSYLVANIA RAILROAD

*Serving the Nation*

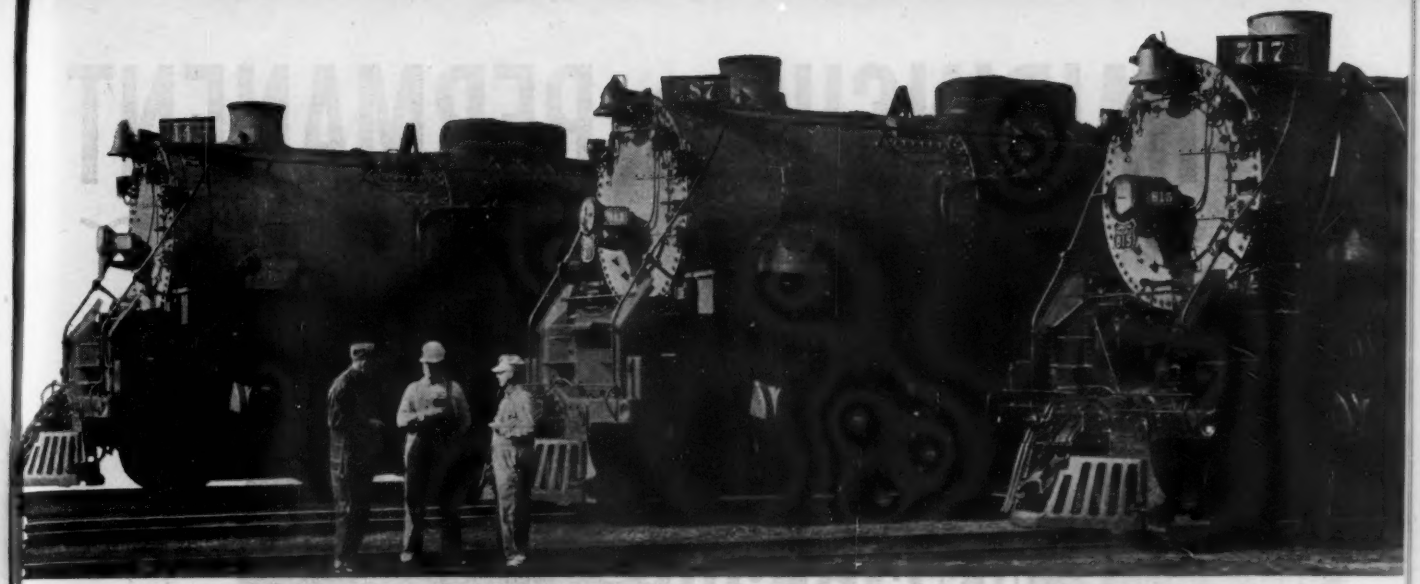
BUY UNITED STATES
WAR BONDS AND STAMPS

# PROVING THEIR MERIT—

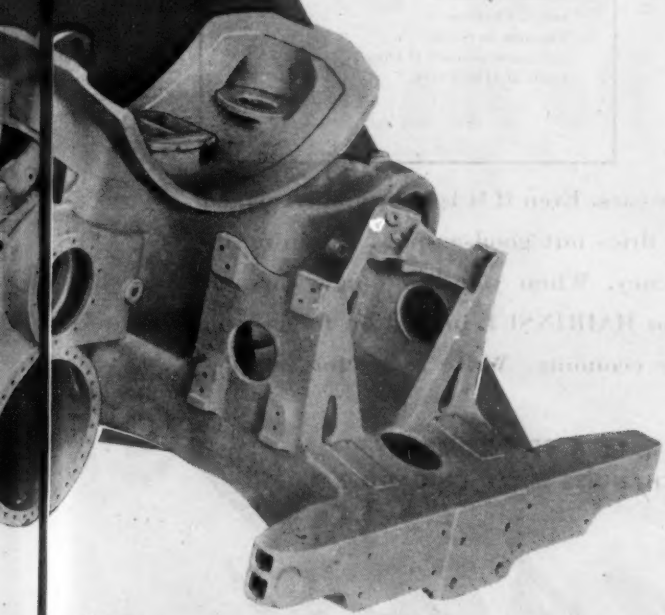
## *Year After Year—*



GENERAL STEEL



# COMMONWEALTH LOCOMOTIVE BEDS



Service records of all types of locomotives equipped with COMMONWEALTH CAST STEEL LOCOMOTIVE BEDS are conclusive evidence that Cast Steel Beds keep locomotives in action longer—enable them to move more passengers and freight, with less time out for repairs.

One-Piece Locomotive Beds greatly simplify locomotive design and construction, eliminate many separate parts, assure permanent alignment of frame and cylinders and provide greater strength with less weight.

All-important in these days of intensive service, COMMONWEALTH BEDS reduce shopping time, man-hours of labor, repair and maintenance expense.

**CASTINGS** EDDYSTONE, PA.
GRANITE CITY, ILL.

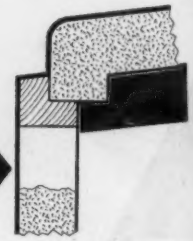
# HAIRINSUL IS PERMANENT INSULATION

## ALWAYS STAYS IN PLACE!

*HAIRINSUL is all-hair in reinforced blanket form . . . never packs down, always stays put . . . maintains high refrigerating efficiency in all parts of refrigerator cars.*



*Some insulating materials may pulverize under vibration, settle and form ice-wasting spaces in walls or roofs. This can't happen in your refrigerator cars if they're lined with HAIRINSUL.*



**With HAIRINSUL lining your refrigerator cars, you'll never have to worry about damage to lading or waste of ice due to gaps in the insulation. HAIRINSUL never settles, never packs down . . . it's all hair in reinforced blanket form, stays securely in place as long as the car is in use, then it can be re-used in newer cars. Even if it is thoroughly soaked with water, HAIRINSUL dries out good-as-new, retaining its original ice-saving efficiency. When you build new cars, or rebuild old ones, insist on HAIRINSUL insulation for greater efficiency and long-range economy. Write today for samples and engineering data.**

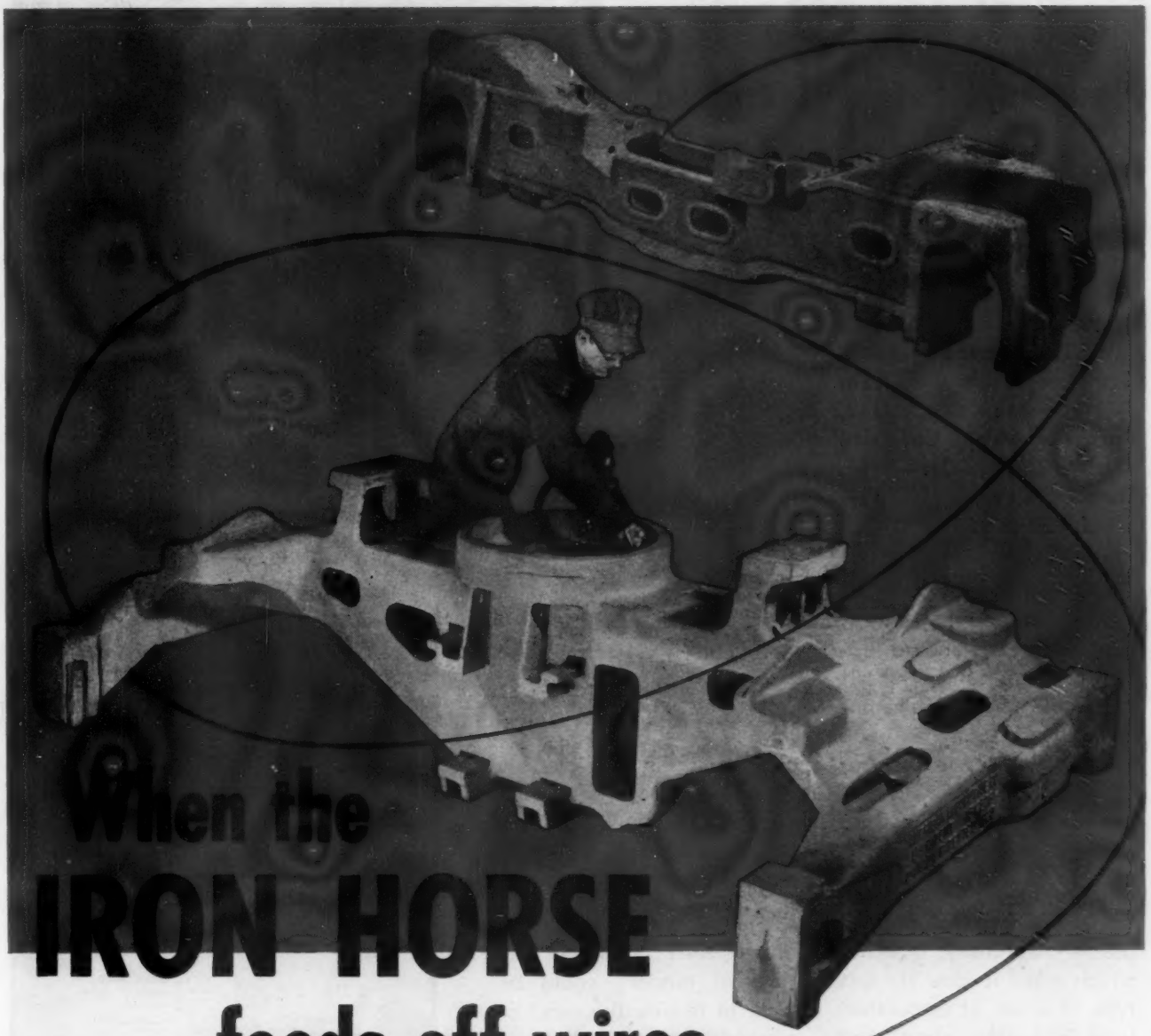
**Hair Is Nature's Own Insulation...**

It's nature's protective covering for animal life...it's a barrier against extreme outside temperature changes. HAIRINSUL is made of animal hair...one of the best reasons why HAIRINSUL is accepted as the finest of all insulating materials for refrigerator cars.

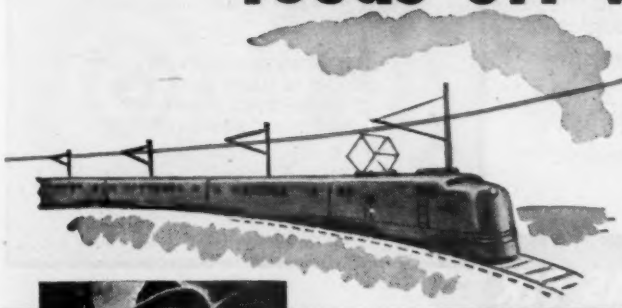
**AMERICAN HAIR & FELT COMPANY**
**DEPT. C-3, MERCHANDISE MART, CHICAGO 54**

# Hairinsul

**ALL HAIR INSULATION FOR REFRIGERATOR CARS**



# When the IRON HORSE feeds off wires



. . . or when it runs on oil or steam, you'll find that PSF products have the required high strength, the clean sound grain structure and high dimensional accuracy that give you the answers for heavy cast parts. Advanced foundry methods and modern equipment are all advantages on *your* side when you plan on steel castings by PSF.


47 YEARS OF STEEL CASTING KNOWLEDGE

*Pittsburgh*

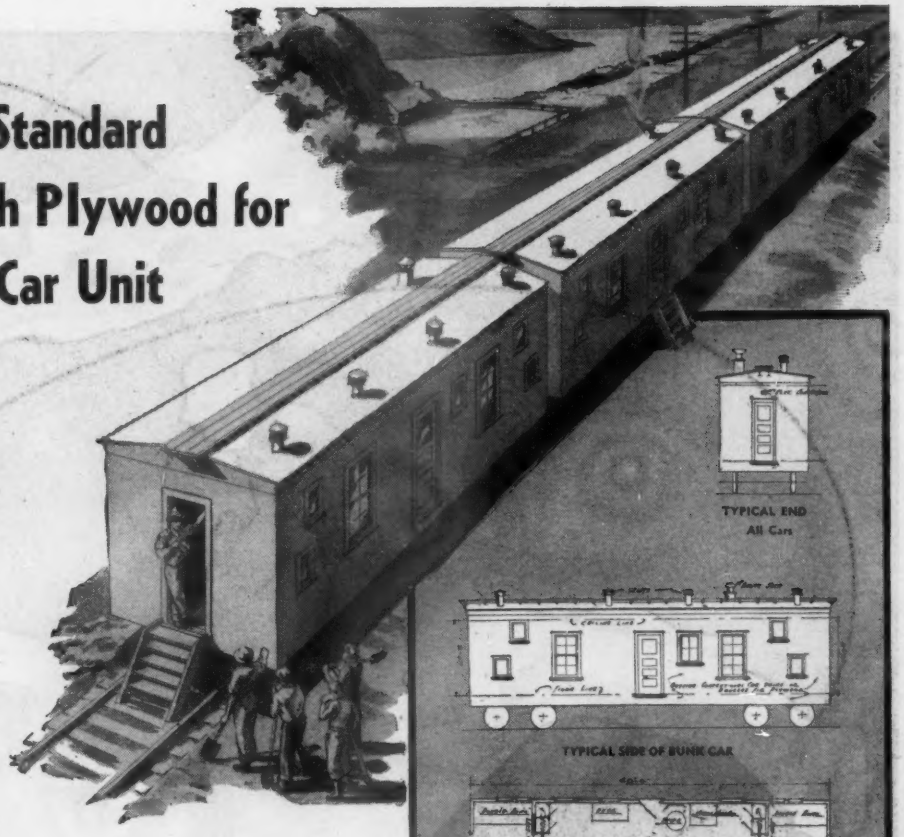
**STEEL FOUNDRY CORPORATION**

GLASSPORT, PA.

*Sales Offices:* NEW YORK • PHILADELPHIA • WASHINGTON AND CHICAGO

W&D 9383

# How to Rebuild Standard 40 ft. Box Cars with Plywood for a Complete Camp Car Unit

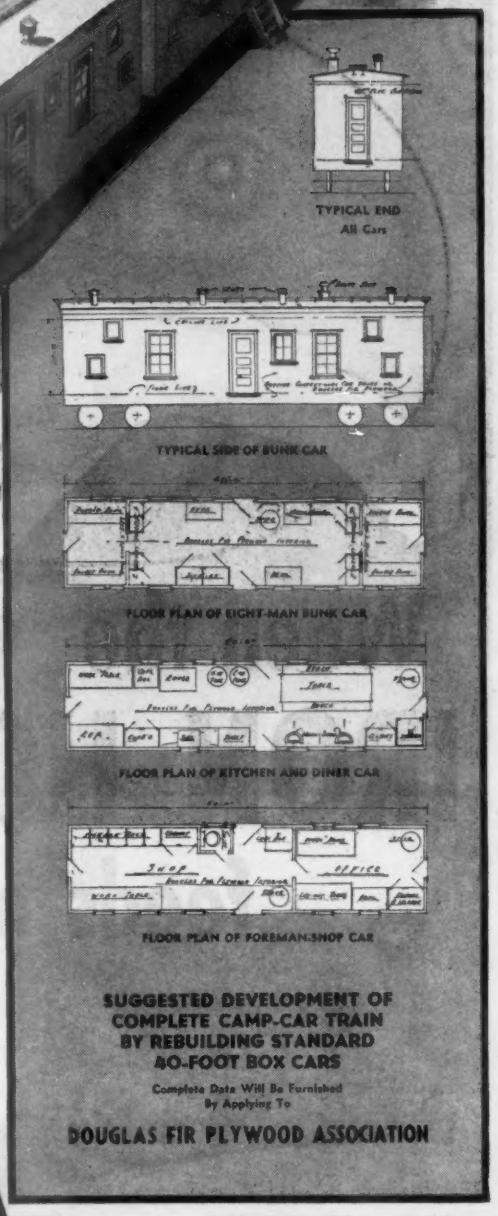


**Three Standard Box Cars Are Transformed Into a Complete Camp-Car Train —Eight-Man Bunk Car, Foreman-Shop Car and Kitchen-Dining Car—With Durable Douglas Fir Plywood.**

STUDY the plans at the right—and you'll see how simply three standard 40-foot box cars can be rebuilt to provide a complete camp-car unit. One car has bunk space for eight men. Another is a diner, with full kitchen facilities. The third is the foreman-shop car.

Douglas fir plywood—proven in hundreds of railroad uses — has many qualities which make it ideal for this type of work. It is durable, light in weight, strong and rigid. It is easily worked, either by hand or with power tools. It comes in large panel form—goes up quickly, with fewer seams and cracks. The interior of cars rebuilt in this manner would be smooth, attractive —easy to clean. The cars would be tighter, too—free of drafts and easy to heat.

Exterior type plywood (made with completely waterproof binder) could be used to re-side the cars; or a standard car could be used with plywood for interior lining and built-ins. Douglas Fir Plywood Association engineers will be glad to work with you in developing such a unit. Write or wire today.




**SUGGESTED DEVELOPMENT OF COMPLETE CAMP-CAR TRAIN BY REBUILDING STANDARD 40-FOOT BOX CARS**

Complete Data Will Be Furnished By Applying To

**DOUGLAS FIR PLYWOOD ASSOCIATION**

PLYPANEL D.F.P.A. TRADE MARK REG. U. S. PAT. OFF.

GENUINE -PLYSCORD- SHEATHING D. F. P. A. INSPECTED

GENUINE PLYWALL Douglas Fir Plywood WALLBOARD D. F. P. A. INSPECTED

GENUINE DOUGLAS FIR PLYFORM Concrete Form Panel D. F. P. A. INSPECTED

EXT.-D.F.P.A. TRADE MARK REG. U. S. PAT. OFF.

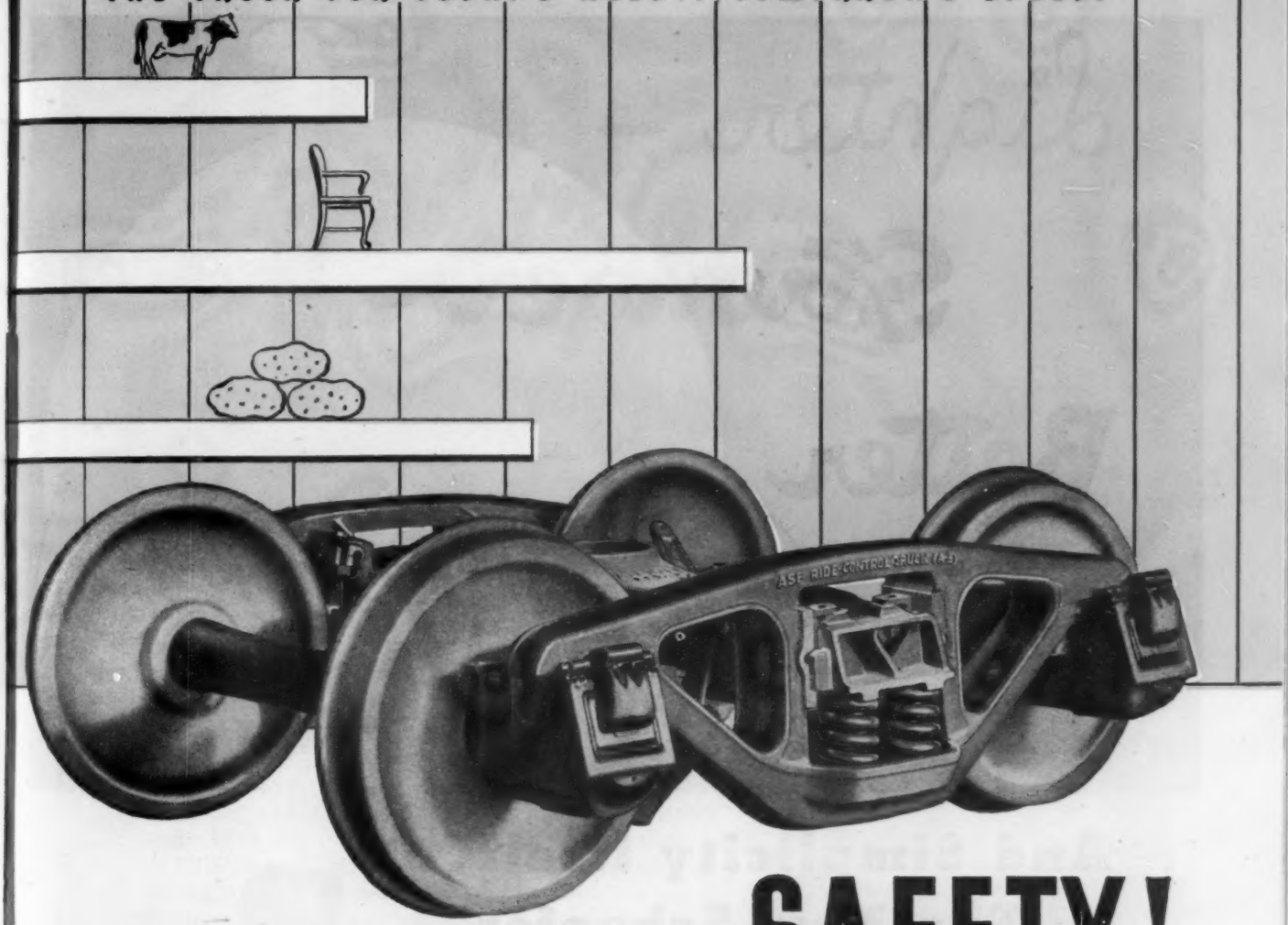
**DOUGLAS FIR PLYWOOD**
LARGE. LIGHT. STRONG.
*Real Wood* PANELS

**SPECIFY DOUGLAS FIR PLYWOOD BY THESE "GRADE TRADE-MARKS"**

Douglas Fir Plywood is now available only on highest priorities. Application for allocation must be made by supplier to the War Production Board.

**DOUGLAS FIR PLYWOOD ASSOCIATION**
**Tacoma 2, Washington**

THE TRUCK FOR TODAY'S NEED . . . TOMORROW'S SPEED!




# FOR MORE LADING SAFETY!

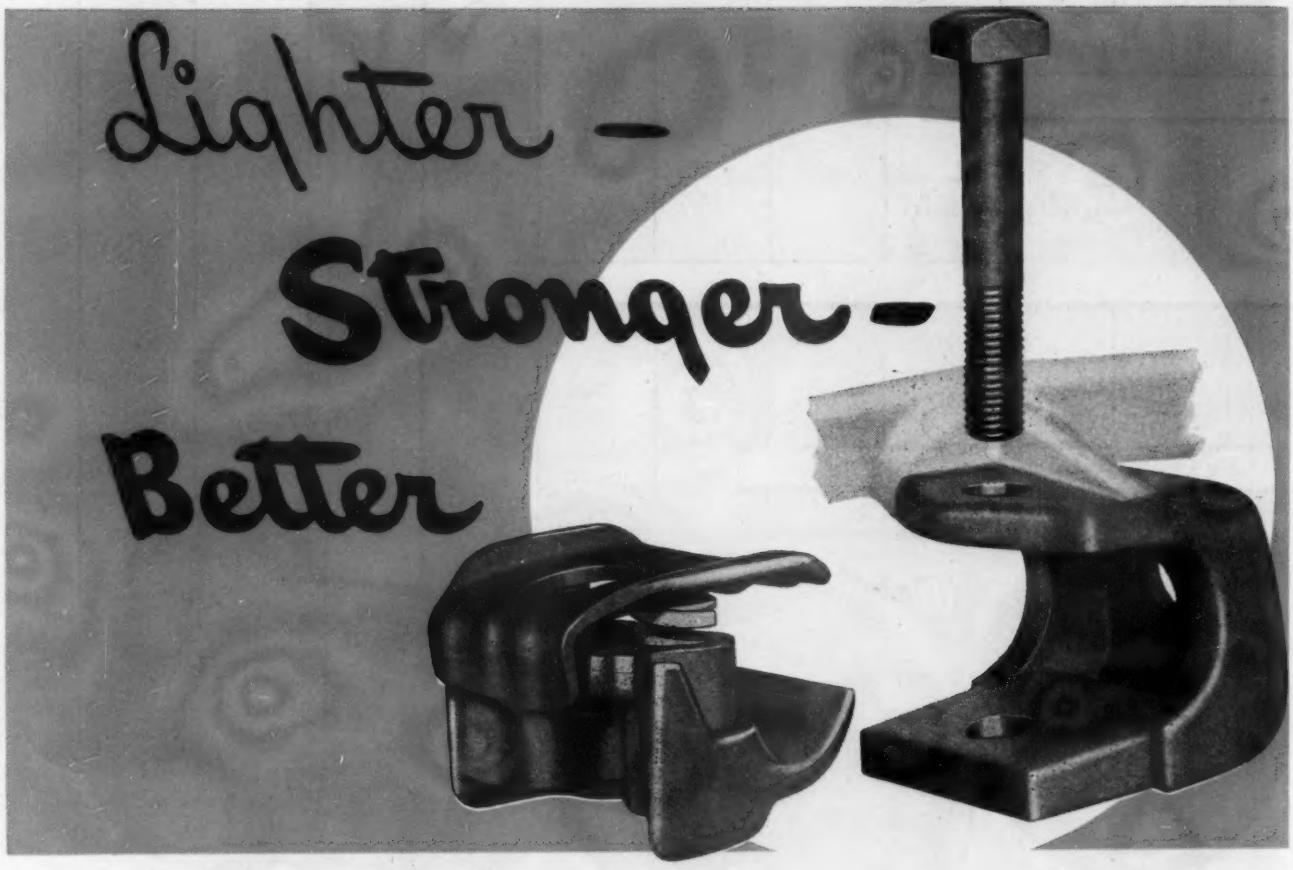
LONG SPRING TRAVEL
CONSTANT FRICTION CONTROL

Today's climbing loss-and-damage figures are variously laid to the inevitable effects of war—acute shortage and rapid turnover of labor; increasing use of worn and reused containers; inadequate packaging; and inattention to sound freight-handling practices. Each *is* a contributory factor. And there is one more—the freight car itself or, more specifically, the *trucks* on which it rides. Much in this direction *can* be done to ease freight smoothly along the rails despite wartime difficulties. The A. S. F. Ride-Control Truck (A-3) gives freight a smooth, easy ride.

## AMERICAN STEEL FOUNDRIES

CHICAGO

MINT-MARK OF ⬡ FINE CAST STEEL




## And Simplicity itself...
## The New Schaefer
## EVER-TITE Wear Plate

**The new Schaefer EVER-TITE Wear Plate is easy to install in the side frame bracket. While in service, springs under compression hold it rigidly in place and save wear on the side frame bracket. Simplicity of construction and rugged design make the Schaefer EVER-TITE Wear Plate ideal for high speed freight service.**

*Schaefer Appliances*

STANDARD ON MOST ROADS

**LIGHT WEIGHT DESIGN INSURES MORE THAN CAR LIFE**

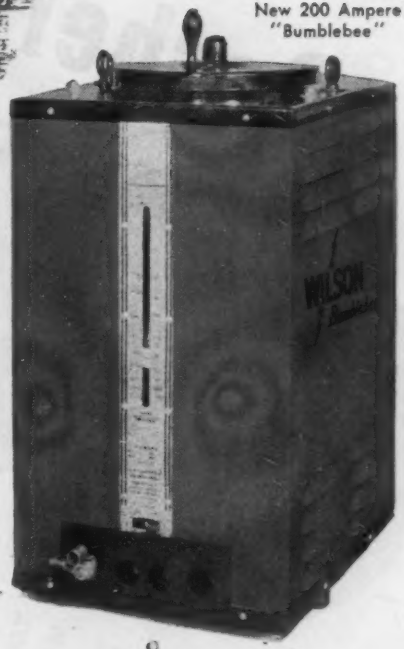
**Schaefer EQUIPMENT COMPANY**

KOPPERS BUILDING • PITTSBURGH, PA.

DROP-FORGED FOR LIGHT WEIGHT, HIGH STRENGTH, LONG LIFE AND SAFETY

# NOW YOU CAN HAVE "Bumblebee" performance for every welding job

New 200 Ampere "Bumblebee"




WHATEVER your welding problem — on production lines, or special jobs — there's a Wilson "Bumblebee" A.C. Arc Welder that's just suited to your needs . . . designed to do the work faster, better, with lower power consumption.

"Bumblebees" are now made in five sizes, all embodying characteristic "Bumblebee" efficiency, economy and dependability: (1) The new 200 ampere "Bumblebee" for light, odd-job or production welding; (2) the 300 ampere, and (3) the 500 ampere "Bumblebee" for heavy all-purpose assignments; and (4 and 5) the 750 and 1000 ampere sizes available on special order. The 300 and 500 ampere sizes are available in "All-Weather" models for welding under conditions where excessive moisture is encountered.

Throughout industry the many important features of the "Bumblebee" have made them a widespread choice among owners and operators. With their deep penetrating arc and excellent arc characteristics, they permit more welding production per work day — of better quality, with considerably lower power costs.

Light, well balanced, rugged, they provide continuous, step-less current control, from maximum to minimum—simply by turning a crank on top. All "live" parts are completely shielded and protected.

• See your nearest Airco office for full information or write Dept. **R.A.** for catalog. Address Air Reduction, General Offices: 60 East 42nd Street, New York 17, N.Y. In Texas, Magnolia Airco Gas Products Co., General Offices: Houston 1, Texas.


All-Weather Model

300 and 500 Ampere Sizes

**AIR REDUCTION**

*Offices in all Principal Cities*

AIRCO


WILSON

# "Bumblebee"

A.C. ARC WELDERS

*with the penetrating, stinging arc*

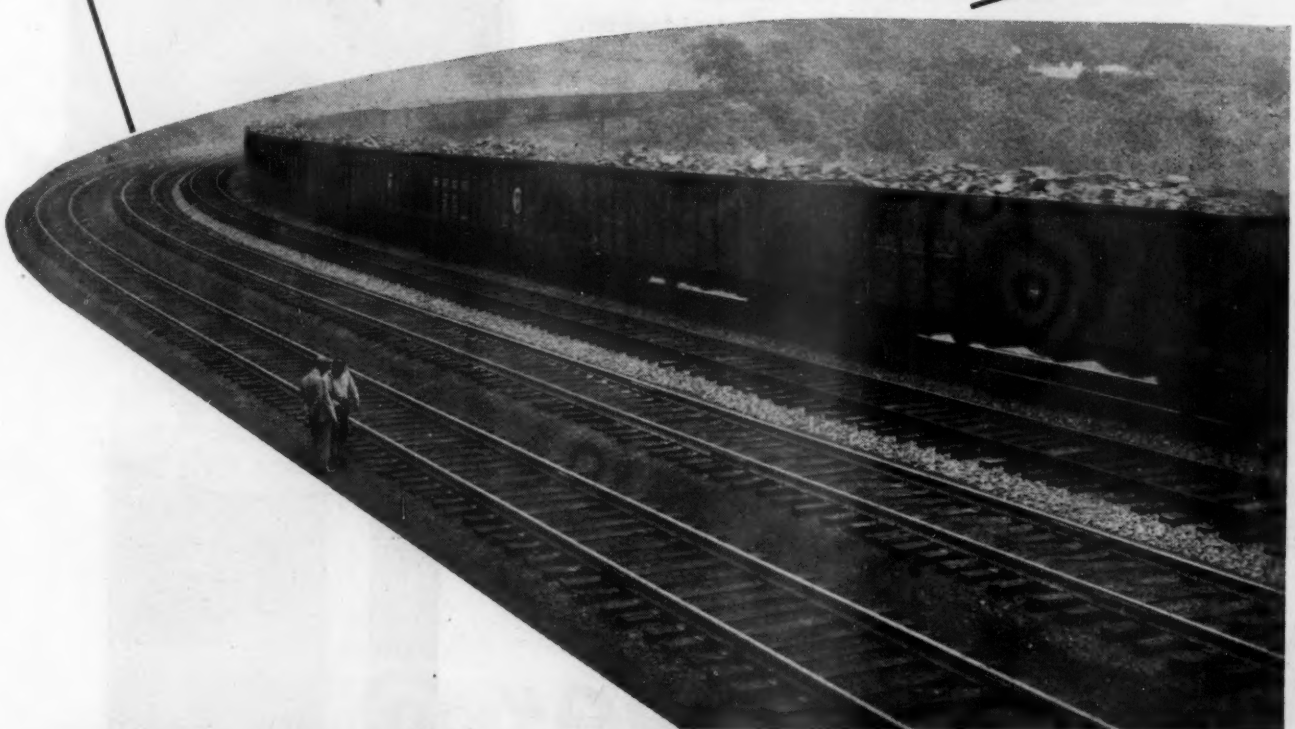
A COMPLETE LINE OF A.C., D.C. AND GAS-ENGINE DRIVEN UNITS

# Barber


# Stabilized Trucks

## Add to the life of equipment and prevent lading damage

Selected for 92,000 Cars
by 55 Railroads and
Private Car Lines



STANDARD CAR TRUCK COMPANY
332 SOUTH MICHIGAN AVENUE CHICAGO 4, ILLINOIS

# Rehabilitation

## FOR FREIGHT CARS

Especially designed for quick and easy installation on freight car trucks, this new Monroe Airplane Type Hydraulic Shock Absorber can help more than 2,000,000 freight cars in meeting today's and tomorrow's requirements for longer and safer hauls and fast freight service.

By absorbing destructive and dangerous vibrations, the new Monroe Airplane Type Hydraulic Shock Absorber protects lading, equipment and roadbed . . . reduces maintenance costs and damage claims.

Embodying the same exclusive Monroe Hydraulic Shock Absorber principles that have proved their superiority over millions of railway car miles*—they are a *proved* product.

This latest Monroe Hydraulic Shock Absorber for freight car trucks *fits right in* . . . with no holes to drill . . . it replaces one of the springs or frictional snubbers in the cluster.

*Our engineers will gladly work with you in the application of this modern new Monroe Airplane Type Hydraulic Shock Absorber for the rehabilitation of your freight cars*

* In use since 1938 on high speed crack streamliners, Monroe Airplane Type Hydraulic Shock Absorbers have smoothed the ride and saved thousands of man hours' maintenance time. They demonstrate the soundness of exclusive Monroe Hydraulic Shock Absorber principles.

ARMY E NAVY

**RAILWAY SUPPLY DIVISION**

**MONROE**

MONROE AUTO EQUIPMENT CO., MONROE, MICH.

# CARRYING HELL NOT HEIL TO HITLER

Ceaseless as the tides, the nation's great trucking systems have not only carried their own individual burden in the war effort, but augmented every other form of transportation, as well. Born of this accomplishment, a peacetime world will doubtless see undreamed of advances in this swift, dependable, fundamentally flexible system of transportation ★ Even now, with advancements hurried by wartime exigencies, Bendix-Westinghouse is prepared to furnish even greater assistance to the safety, dependability and economy of the trucking industry which has learned through gruelling service that nothing takes the place of Air Brakes or the traditional accuracy, foresight and integrity of Bendix-Westinghouse in their development and manufacture ★ If you are not already thoroughly familiar with the many exclusive advantages of the world's finest power-to-stop, may we suggest you contact your nearest authorized Bendix-Westinghouse Distributor at once. He's a good man to know.

BENDIX-WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY . . . ELYRIA, OHIO

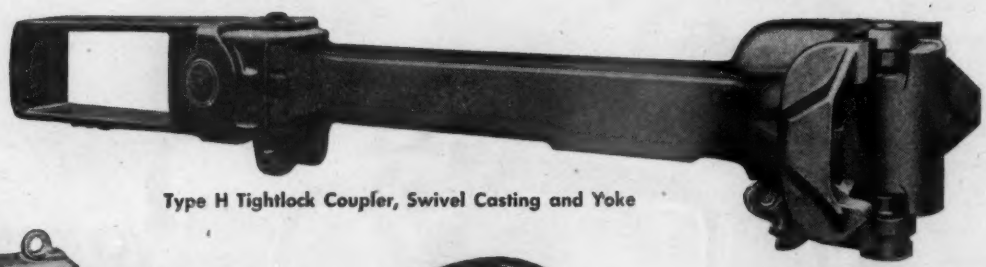
**Bendix-Westinghouse**

**AIR BRAKES**

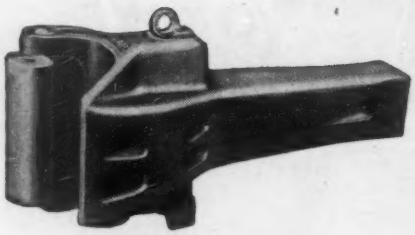
**AND PNEUMATIC CONTROL DEVICES**

IT IS SIGNIFICANT THAT AMERICA'S FINEST MOTOR TRUCK FLEETS ARE EQUIPPED WITH BENDIX-WESTINGHOUSE AIR BRAKES

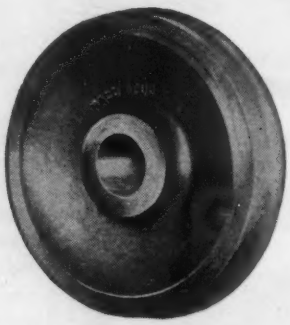
# NATIONAL PRODUCTS
## FOR RAILROAD EQUIPMENT



Type H Tightlock Coupler, Swivel Casting and Yoke



A. A. R. Std. E. Coupler

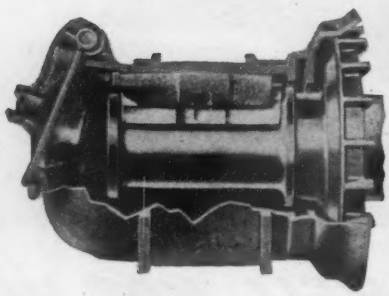


Naco Spun Steel Car Wheel

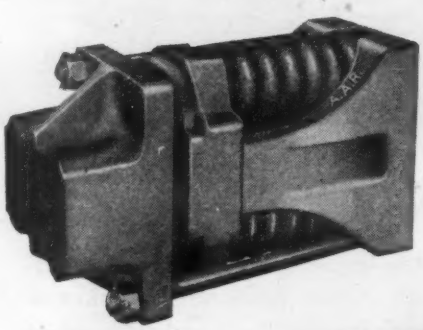
A. A. R. Alternate Std. E. Coupler

A. A. R. Std. Vertical Plane Horizontal Key Yoke

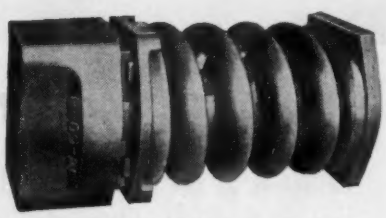
A. A. R. Alternate Std. Vertical Plane Swivel Yoke



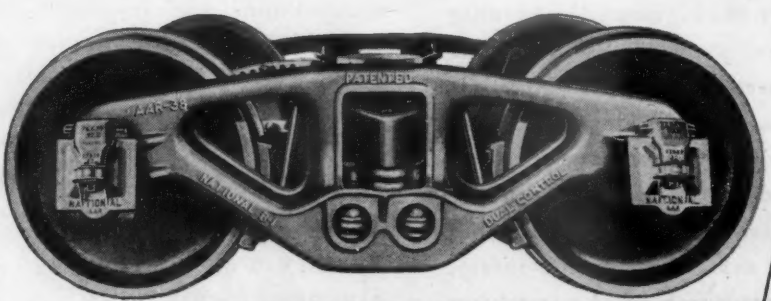
National Journal Box with Deflecting Fan and Flexo No. 2 Lid



M-17-A Draft Gear
A. A. R. Approved



M-50-B Draft Gear
A. A. R. Approved



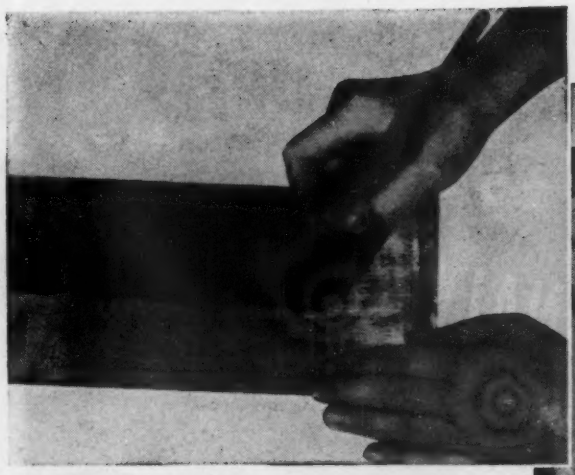
National B-1 Truck with Dual Control

76 YEARS SERVICE To Transportation

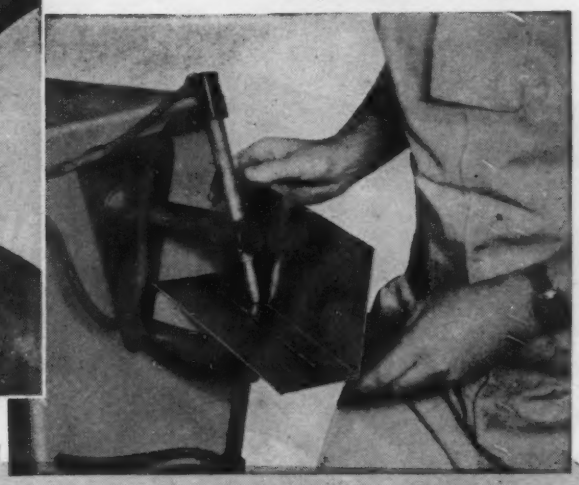
**NATIONAL MALLEABLE AND STEEL CASTINGS CO.**

*General Offices:* CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.



*Applying sealer to faying surfaces of metal*



*Spot welding operation — sealing compound between seam*

# If You Do Spot Welding . . .

# PRESSTICO SPOT WELD SEALER

## Assures Air and Watertight Joints

Now, thanks to the development of Presstico Spot Weld Sealer, you can quickly and easily obtain air, moisture, and waterproof seals between spot welded joints and seams.

This new sealing compound is applied to the faying surfaces of the metal *before* welding. It does not affect the strength of the weld, has no corrosive effect upon the metal, and retains high cohesive, adhesive, and sealing properties throughout a wide range of temperatures. It effectively prevents corrosion or rusting in the joint.

Presstico Spot Weld Sealer is available in flow-gun, brush-on, and spray-on types. It has been thoroughly tested and already is being extensively used by the automobile, railroad, and refrigeration industries.

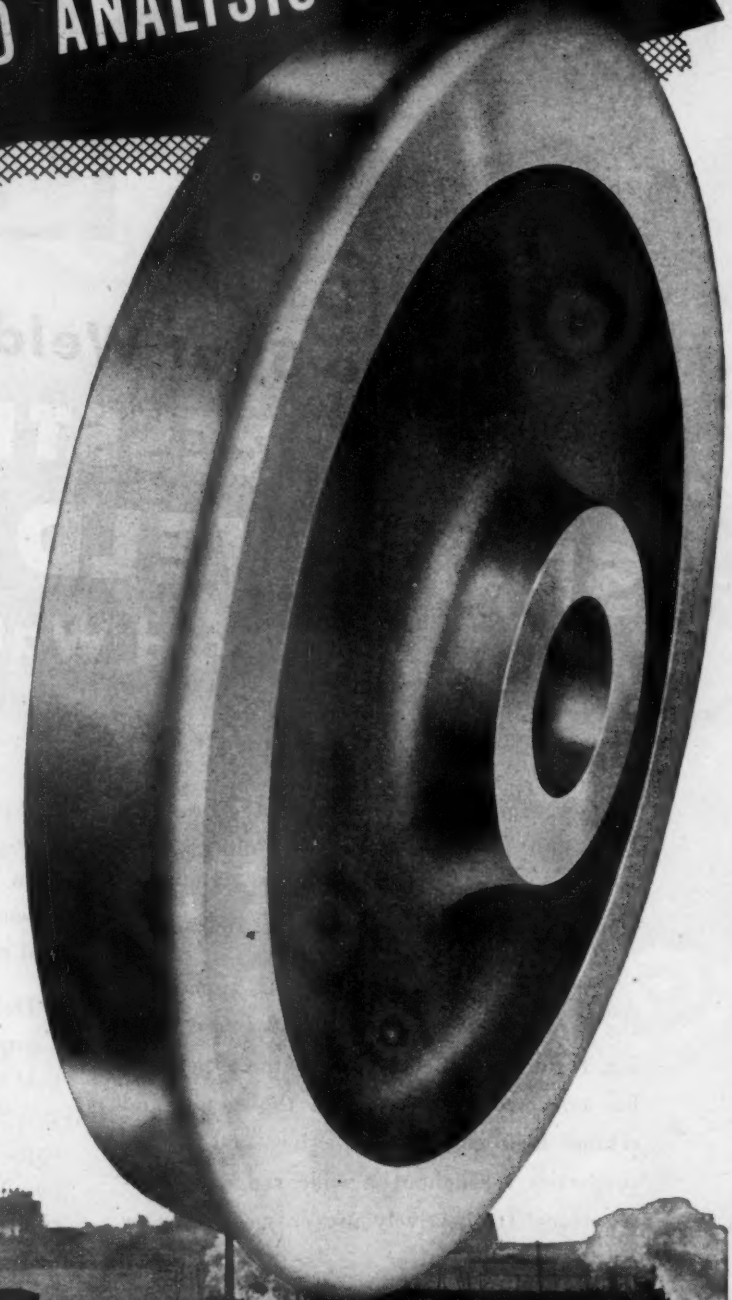
Developed by the Presstite Engineering Company, for many years specialists in the field of sealers, coatings, and adhesives, Presstico Spot Weld Sealers have a wide variety of applications throughout all industry. It will pay you to write to Presstite for full information on this, or any other industrial or commercial sealing problem.

PRESSTITE SEALING COMPOUNDS

**PRESSTITE ENGINEERING COMPANY**

3954 Chouteau Avenue • St. Louis 10, Missouri

# WHY 32 LEADING ROADS USE THIS "BALANCED ANALYSIS" WHEEL



There's a reason why ARMCO Stress Resistant Wheels are rolling under cars operated by 32 of the country's leading railroads.

*Their exclusive "balanced analysis" means more and safer miles.*

S-R Wheels stay in service longer because they have lower internal stresses right at the start. And they continue to resist stresses built up in service.

"Balanced analysis" gives you a wheel with the highest resistance to wear and shelling for a given resistance to thermal cracking. Its resistance to thermal cracking is equalled only by wheels with a lower carbon content.

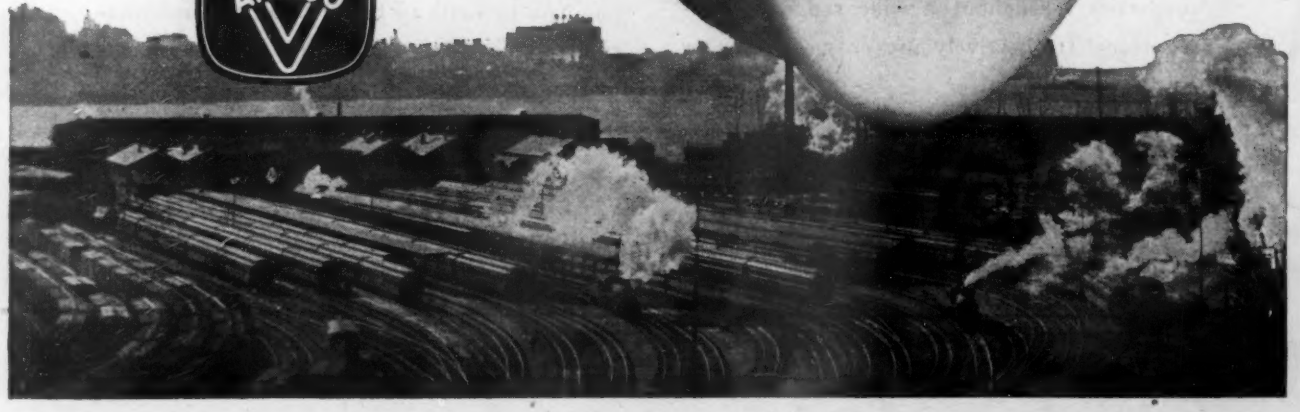
This means trouble-free service and high safety standards—the ability to "take it" in punishing wartime traffic. Get all the facts on ARMCO Stress Resistant Wheels from our nearest office, or write direct to the Armco Railroad Sales Co. Incorporated, 891 Curtis Street, Middletown, Ohio.

EXPORT: THE ARMCO INTERNATIONAL CORPORATION

## ARMCO STRESS RESISTANT WHEELS

*"The Wheel of Tomorrow is Rolling Today"*

ARMCO



Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

# "AP" Decelostat

Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

***Softens the Brake when Wheel Slip Impends . . .***

Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

Regulates the Brake to Rail-Wheel Adhesion

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## Westinghouse Air Brake Company

Wilmerding, Pa.

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## *In This Issue*



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# The Week at a Glance

**NOT YET PERFECT:** April will be the ninth annual "Perfect Shipping Month" sponsored by the National Association of Shippers' Advisory Boards. As one of this issue's feature articles points out, the need for supporting this drive for improved methods is emphasized more than ever before by the 1944 loss and damage payments. They amounted to about $65 million, or 0.75 per cent of gross as compared with 0.55 per cent in 1943. The 1944 payments on l.c.l. were 4.45 per cent of the revenue from that business. Although civilian traffic accounted for only about 40 per cent of 1944's ton-miles, it claimed 92.6 per cent of the loss and damage payments. The military and other war agencies, of course, have first call on prime packaging materials; but civilian shippers could nevertheless do better than they have been doing.

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**CLASS LEGISLATION:** The expanded social insurance program concocted by the Railway Labor Executives Association with the help of the Railroad Retirement Board's "neutral" chairman, Murray W. Latimer, is "class legislation of a most flagrant kind," for it would take a group now preferred and give it even more preferential status. That is how Carter Fort epitomized the Crosser bill in closing the A. A. R.'s opposition presentation before the House interstate and foreign commerce committee. To Clarence Miller of the Short Line Association this "womb-to-the-tomb" bill presented a picture of "sociological fanaticism carried to its most ridiculous conclusion," the embodiment of "a sociologist's dream—the reckless spending of other people's money."

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**JOHNSON GETS JITTERY:** Our airmen on the battlefronts recognize the military importance of the enemy's railways and their equiment, O. D. T. Director Johnson remarks as he sums up his reasons for predicting that American railroads and other domestic transportation agencies will not be able, this year—because adequate provisions have not been made to replace equipment that becomes unserviceable—to equal the ton-miles total they moved in each of the past two years. Because the task will not be any smaller, it's his opinion, as reported in the news columns this week, that the immediate prospect for freight transportation is "alarming" and "critical," and he foresees little likelihood of material improvement during the year. With domestic railroads already short 185,000 freight cars, 2,146 locomotives, 2,619 passenger-train cars, and 762,000 tons of rail, he sees no way of getting even enough materials to maintain present capacity.

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**KENDALL REPORT:** Following closely upon the Johnson statements came the report on car supply conditions, which Chairman Warren Kendall of the Car Service Division sent this week to general chairmen and National Association officers of the Shippers' Advisory Boards. Darkest picture sketched in the report was of the box-car situation in Western territory where the supply is expected to remain inadequate through the fall months. But Mr. Kendall found no easy conditions now or in prospect with respect to any type of equipment, save stock cars which have been in "fully adequate" supply in all parts of the country. Meanwhile shipper cooperation continues in full measure, February tests having indicated the lowest percentage of car detention beyond free time since the car efficiency plan was inaugurated in March, 1942.

●

**LUHRSEN TO R. R. B.:** President Roosevelt this week sent to the Senate his appointment of Julius G. Luhrsen to membership on the Railroad Retirement Board. Mr. Luhrsen, who has been executive secretary-treasurer of the Railway Labor Executives Association, will become the labor representative on the board, succeeding Lee M. Eddy whose term expired August 29, 1944. The labor organizations recently nominated Mr. Luhrsen after the President had made no move for nearly six months to act on their previous recommendation that Mr. Eddy be reappointed. Thus far at least Mr. Roosevelt seems to be continuing his work of retiring the Retirement Board. His failure to reappoint Mr. Eddy follows his 1943 failure to reappoint M. Roland Reed, the former management member. Frank C. Squire is the present management member, and Chairman Murray W. Latimer remains as the sole survivor of the original membership. His term expires August 29, 1947.

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**WRECKING JOB:** The 701st Railway Grand Division of the Military Railway Service recently had an unusual wrecking job to recover a 2-8-0 U. S. A. locomotive which had slid down the side of a 60-ft. fill, coming to rest at the bottom of a deep gully crossways of and bridging a swollen creek. How the job was done "almost by hand" is told and illustrated in a feature article herein.

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**CALL IT ANYTHING:** One of this issue's feature articles reproduces the able statement of the case for comprehensive technological research centralized in an A. A. R. department, which was made to the New York Railroad Club last week by A. E. Perlman, chief engineer of the D. & R. G. W. And the leading editorial comments on the statement recalling our January 27 issue's pro-and-con discussion of the same subject by two editors taking opposing views; and recognizing how Mr. Perlman's statement indicated that the area of disagreement can be considerably narrowed by more precise definitions of terms. The editorial disagrees with some of Mr. Perlman's terminology, but it goes on to note how New Haven Vice-President C. E. Smith's engaging comment on the Perlman address pointed up the real issue, i. e., the need all along the line in railroad work for the inquisitive, imaginative, objective intelligence—the eagerness to question every practice, every product, and every material, and to abide by the results of the inquiry. In other words, the railroads need more research of all kinds, however defined and however organized.

**LEGAL FETTERS:** Arizona's law limiting freight and passenger train lengths to 70 and 14 cars, respectively, comes up for argument in the Supreme Court next week. In that connection the A. A. R., coming to the support of the Southern Pacific, has filed a brief setting forth certain aspects of the constitutional and economic case against such restrictive legislation. The argument is summarized in a news article. The trial court, having considered the evidence, found for the railroad, but on appeal was reversed by the state supreme court, which, the A. A. R. points out, reached its decision on constitutional grounds without regard to the facts in evidence. While the railroads consider their arguments sufficient for finding the law unconstitutional, they go on to ask the court, in effect, what kind of fix the country would be in right now if all its railroads had been hamstrung by such statutory barriers to efficient operation and technological progress.

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**DIESELS DO IT:** The impact of war traffic on the two desert divisions of the Santa Fe is dramatically illustrated by comparative 1939 and 1944 figures, which show a 300 per cent increase in gross ton-miles, and a 500 per cent increase in net ton-miles. Moreover, these two divisions present just about the toughest operating conditions and most acute manpower shortage on the entire system. How Diesel-electric freight locomotives have aided the road in overcoming these obstacles to do a bang-up job of hauling vital war materials is told in an illustrated feature article beginning on page 541. The 68 Diesels now in service are working an average of 91.5 per cent of the time, each running over 10,000 miles per month.

●

**LARGE PROGRAMS:** The railways of the United States and Canada plan construction programs in 1945 at substantially the same level as last year when expenditures for improvements, reaching $300 million, were the largest in 14 years. Like those of the past three years, the 1945 programs will be confined largely to improvements that are designed specifically to relieve congestion at terminal and intermediate yards, to expedite the movement of trains between terminals, to facilitate the turning of locomotives, to permit their more prompt return to road service, and to improve facilities for repairing locomotives and cars. Details of the programs are outlined in the feature article beginning on page 546, which is based on information secured from the ranking engineering officers of 31 selected roads.

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**GLASS-DOMED CAR:** The Burlington has announced plans for the construction of a new type of passenger car featured by a dome made entirely of glass. The idea is to give passengers riding on the upper level an entirely new and unobstructed view of the countryside; while the two-level arrangement of seats will add to capacity. General Motors Corporation is working in conjunction with the Burlington on the new car, more details of which are given in a news story herein.

# More Research and More Inquisitiveness

An able statement of the case for comprehensive technological research centralized in a research department of the Association of American Railroads was made to the New York Railroad Club last week by A. E. Perlman, chief engineer of the Denver & Rio Grande Western and chairman of the subcommittee on technological research of the A.A.R.'s Railroad Committee for the Study of Transportation. Mr. Perlman's address is reported elsewhere in this issue and will provoke constructive thought, alike by those who oppose as well as by those who support his proposals —and, we may add, by the fence-sitters also.

### "Applied Research"—Not "Trouble Shooting"

The pros and cons of such centralization of technological research as Mr. Perlman favors were discussed in these pages in our January 27 issue, page 231, by two of our editors who take opposing views on this question—so it is unnecessary here to review the differences which may arise regarding this important and rather complex question. The area of disagreement can, however, be considerably narrowed by a more precise definition of terms. Mr. Perlman calls the kind of research he advocates for the A.A.R. "fundamental research," to distinguish it from mere testing of materials and "trouble-shooting." To our way of thinking, "applied research" would be a better term for what he is proposing—since "fundamental research," elsewhere, usually means such inquiry as study of the properties of metals or characteristics of certain types of electric currents—investigations which yield only the raw materials from which practical applications may perhaps later be constructed. If this latter type of research is, as we are persuaded, the only aptly named "fundamental research," then, obviously, the railroads cannot engage in it, because in that case railroad research would parallel and duplicate all the "fundamental research" being done by the entire manufacturing industry.

The kind of technological inquiry the railroads need more of is not this "fundamental" variety, but rather the application of the results of the "fundamental research" in the manufacturing industries to the practical problems of the railroads. The question thus resolves itself into one of the best organizations to perform a job the nature of which can be generally agreed upon.

On this question of the best organization opinions will differ, but they won't differ as much as they do when the opponents don't even jibe on the definition of what it is they differ about.

Mr. Perlman's address was discussed by C. E. Smith, vice-president, purchases, of the New Haven, in as engaging a piece of public speaking as one hears in a long time. He related how he had been asked in 1940 to make a speech on the railroads' accomplishments in technological research. The story he told was one of great achievement—but, he added, "Quite a story could also be told on the other side"; and he then proceeded to tell it. He related instance after instance of the railroads being content with products and ways of doing business which have come to them from habit or prejudice rather than from careful inquiry.

In these instances Mr. Smith ranged all the way from simple testing-laboratory jobs, through what we would term "applied research" and even into the fundamental; and he favored all of them. If he meant to imply that simple tests of devices is a job for a centralized research organization, which would then issue instructions as to the "best buy" to all the railroads, leaving not even such elementary analysis as this to the individual railroads, then we do not believe most railroad men would track along with him, and we are certain that this is not the kind of centralized research that Mr. Perlman favors. Even if a large job of centralized research can be properly entrusted to the A.A.R., surely these homely "trouble-shooting" and testing jobs don't belong to such an organization.

### Need for Imaginative, Objective Intelligence

But this question is beside the real point that Mr. Smith made, whether he realized it or not. This was his all 'round exposition of the need all along the line in railroad work for the inquisitive, imaginative, objective intelligence—the eagerness to question every practice, every product, and every material, and to abide by the results of the inquiry. This means not only not clinging to old ways just because they are comfortable but also the avoidance of the opposite error of embracing the novel just because it is "modern."

The substance of all inquiry is the character of the minds that conduct it. The degree of centralization or decentralization is a question of form, which is inconsequential without genuine substance behind it. The railroads need more research of all kinds, however defined and however organized; they would do well to cultivate a greater spirit of inquisitive forthrightness throughout their organizations.

## Courtesy in St. Louis

Programs of individual railways for training their employees in courtesy have been mentioned from time to time in these pages—surely a necessary effort if any substantial portion of the present-day passenger traffic is to be held on the railways after the war.

In view of the large number of railways serving St. Louis, the courtesy training program there has been handled jointly under the auspices of the St. Louis Local Passenger Committee, which is comprised of passenger representatives of all the railroads which serve St. Louis. This committee has been staging a series of events designed to promote courtesy among the railway representatives in St. Louis who deal with the traveling public. For some time past, the Southwestern Bell Telephone Company has been cooperating by supplying booklets regarding telephone courtesy and has sent speakers to elaborate on the principles laid down in these booklets. The fact that all reservations in St. Louis are handled through a central bureau has made it a less difficult job to drive home the benefits of telephone courtesy. At regular meetings also the St. Louis Local Passenger Committee procures the services of nationally-known speakers who address the group—the average attendance is about 375—on sales psychology, courtesy and kindred subjects.

The effects of all this have been good. Anyone who has occasion to buy railway or Pullman tickets in St. Louis cannot help but notice, not only the steady improvement effected there but also the favorable comparison with other large railway centers.

The attempts to please passengers in St. Louis have not been confined entirely to the psychological phase. The Terminal Railroad Association, which operates the Union Station used by all railways in this terminal, has been steadily improving the appearance, efficiency and comfort of the station. The formerly dingy atmosphere has been replaced by brightness and an overall impression of modernity, which is impressive in view of the fact that this is one of the oldest of the large passenger stations in the country. The combination of courtesy and clean, comfortable surroundings in boarding and leaving trains has aided materially in promoting goodwill among passengers. Unquestionably the pleasant memory will linger and serve as an influential factor when present passengers are deciding between various means of transportation after the war.

## Joint Inspection of Switches

In automatic block signal and centralized traffic control territories, as well as at interlockings, some roads are reducing the number of unnecessary train delays by promoting the practice of cooperative inspections of all main track switches by representatives of the track and signal maintenance forces. At a hand-throw main line switch in automatic block territory, the signal maintainer is responsible for the switch circuit controller to check the position of the normally-closed switch point, within limits of $\frac{3}{16}$ in. for a facing-point and $\frac{1}{4}$ in. for a trailing-point switch, according to regulations of the Interstate Commerce Commission. On the other hand, the track forces are responsible for the maintenance of the tie plates, rail braces, switch stand and connections. This equipment may give every appearance of being in satisfactory condition for safe operation of trains, but there may be so much slack in the rod connections, braces and plates, that the switch circuit controller will operate to set the signals, and thus stop trains unnecessarily.

The protection at switches in interlockings and in centralized traffic control territory includes not only point-detector circuit controllers but also mechanical facing-point locks. If the plates and braces of a switch are not properly installed and maintained to hold the stock rail in place, the facing-point lock cannot lock the switch, and the signal cannot be cleared; therefore, trains are delayed until the maintainer is called.

The practice of cooperative inspections of switches has been in effect on the Chicago, Milwaukee, St. Paul & Pacific for more than 15 years. The Chicago, Burlington & Quincy recently announced that the practice has been under trial on one division for some time with excellent results. In these inspections the track supervisor, section foreman and signal maintainer make a joint inspection of every switch once each month. If a switch is not in satisfactory condition, the necessary adjustments or repairs are made at once or arrangements are made to do the work as soon as possible.

By thus checking the conditions of wear periodically, corrective measures can be taken before the accumulated slack allows the circuit controllers and facing-point locks to cause trains to be stopped needlessly.

## Those Who Have Fallen

An Indian band, in colorful tribal costume, played softly as six plaques were dedicated at the Santa Fe shops at Winslow, Ariz. They were in honor of employees, Mexicans and Indians of the Laguna, Navajo and Hopi tribes—Americans all—who had been killed in the service of their country. At many other places throughout the Santa Fe system similar plaques have been dedicated to ex-employees over whose bodies "Taps" has been played. About 200 former Santa Fe men have given their lives to their country.

Johnnie Squires was a messenger boy for the Baltimore & Ohio. As a sergeant in Italy he won the nation's highest award, the Congressional Medal of Honor, for outstanding gallantry and was killed in action a few months later. The current B. & O. magazine contains the following dedication, signed: "The B. & O. Family":

"To keep aloft the torch which Sgt. Johnnie Squires and all his fallen comrades-in-arms 'from failing hands have thrown us,' we humbly dedicate ourselves and all the resources at the command of this railroad to keep the war trains rolling—around the clock—ceaselessly—more of them more heavily laden than ever before in our history. So that the maximum number of troops may be transported toward the fighting fronts, and the maximum number of guns, planes, tanks, shells and other vital supplies placed in the hands of our gallant fighting men just as rapidly as the factories of this nation can turn them out. Rain, snow or flood will not stop us—shortages of labor or equipment will not deter us—fatigue or the shifting tides of battle will not cause us to turn aside from our sacred duty until the last enemy gun shall be silenced across the Atlantic and across the Pacific."

No other industry was so thoroughly prepared for this war as the railways. Ever since the previous war they had been preparing to supply a vastly increased output of transportation in the event of another emergency. Not only that but they cooperate in the establishment of railway operating battalions, the personnel of many of which had been trained for years to take over military railway operation. Thus, when these battalions were activated early in the war, the railways were really the first industry to contribute trained man-power to the Army en masse. Since then, many more thousands have entered the service and many railwaymen have been lost in action. These range in occupation from a former general manager of the Santa Fe, who, as a colonel flew "out into the wide blue yonder" in the Pacific and was never heard from again, to a former section laborer of the Pennsylvania, who was killed on the Anzio beach-head.

Their memory is honored by their relatives, their friends and their associates. Further, it is to be kept permanently enshrined by the "soulless corporations" which employed them. The railway industry salutes all those who have rendered up that "last full measure of devotion."

## Budgets for 1945 Larger

From their early days the railways have found it necessary to make constant changes in their facilities and operating methods to meet the ever-changing requirements of traffic. However, the present generation of railway men has witnessed more radical changes in operating methods in the character of traffic and the sources from which it is derived, and in the nature of the facilities required to handle this traffic, than have any of their predecessors in a comparable period of time. Not a few of the changes in operating methods that have been put into effect in recent years grew out of the financial collapse of 1929 and the ensuing depression. In part, they were impelled by new forms of competition; in part, by increasing restrictions imposed by regulatory bodies; and, more recently by conditions created by the war.

Unfortunately, many of these changes in operating methods were occurring during a period when the railways were prevented by lack of funds from undertaking many of the improvements that were needed to make them most effective, so that the absence of many needed facilities, plus the obsolescence of large numbers of existing facilities, became a major factor in hampering efficient operation.

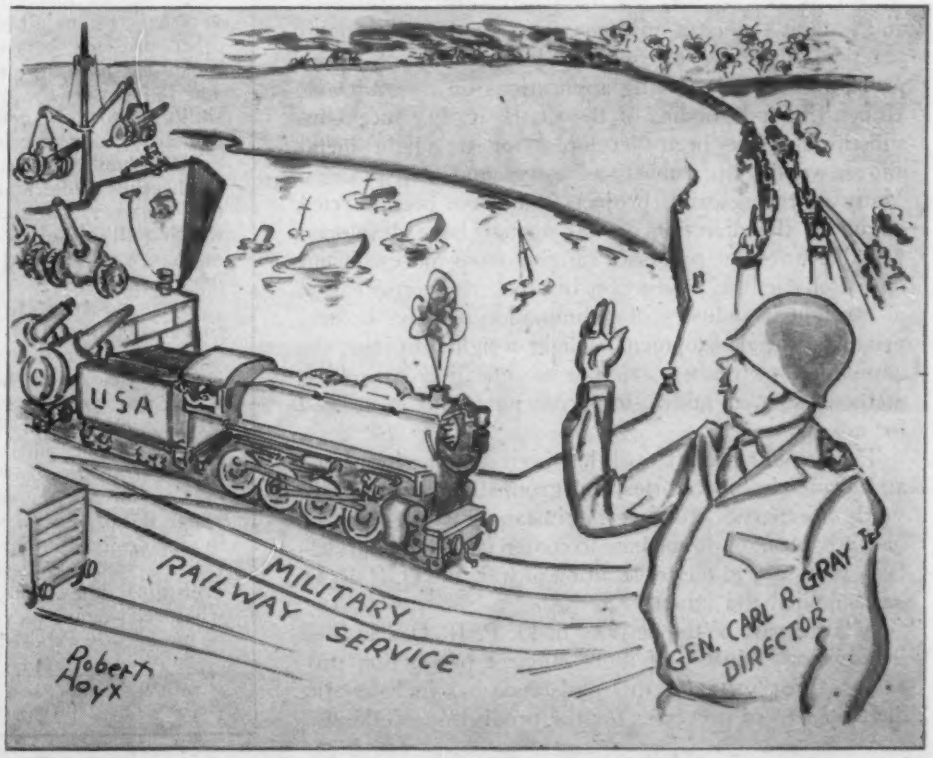
However, because of the sub-normal volume of traffic during this period, the effect of these deficiencies was not so serious as it would have been under a normal traffic volume.

With the rapid increase in traffic resulting from the defense program and subsequent entry of the country into the war, the need for many of the improvements which, by force of necessity, had been neglected, became doubly apparent almost immediately. Furthermore, because traffic began to originate from a multitude of new sources, facilities which never before had been needed were required almost at once. Again, changed routings of both new and existing traffic created demands for other facilities that had not been required previously.

In the light of these changes, it is not surprising that there has been a marked revival of construction activity on the railways, although the amount of work that could be done has been limited or hampered seriously by shortages of both material and labor. While capital expenditures for the fixed properties in this revival have not reached the level of two decades ago, they were greater in 1944 than in any year since 1931, and those for the current year are expected to be as great or slightly greater.

The ever-changing demands of traffic have been equally important in their effect on the maintenance of the facilities required to move the traffic expeditiously and economically. In quite a few instances during the last three or four years, new sources of traffic have converted what had previously been unimportant

***One Reason Why the Nazis Are Folding Up So Fast***



branches into heavy-traffic arteries, requiring main-line standards of maintenance. In addition to these altered requirements by reason of new sources and new routings of traffic, the record volume of traffic now moving has necessitated greatly increased expenditures for maintenance to offset the current wear and tear on the tracks and structures.

This is evidenced clearly in the fact that expenditures for maintenance broke all records in 1943, went still higher in 1944, and, as pointed out in an article in this issue, bid fair to go still higher in 1945, according to present plans. Despite the record outlays, it is the general testimony of engineering officers that these expenditures still fall short of current needs, and as a result, that deferred maintenance is continuing to accumulate, in some cases at a disturbing rate. With little relief from present traffic demands in sight, and with little immediate prospect of the roads being able to secure all of their essential requirements to make good these growing deficiencies, a situation is developing that is not pleasant to contemplate.

## Coordinated Research

Although industrial and academic research have played an important part in American industrial production, the coordinating influence of war has brought many new developments which undoubtedly will improve many of the materials and devices manufactured for civilian use after the war. The Office of Production Research and Development of the War Production Board has served to correlate and expedite many research projects during the past year. Moreover, it has been through this agency that research has made many important contributions to increased war production.

While the O. P. R. D. as the technical research agency for the W. P. B. does not itself carry out the research and tests, it evaluates, initiates, finances and coordinates practical war-time research projects, many of which probably will have lasting applications on the railways. Under the sponsorship of the O. P. R. D., successful substitutes have been developed for tin, light metal alloys, wood pulp, rubber, adhesives and ship timbers. Many of the research projects that have been carried on under the direction of this agency have developed valuable war-time processes ranging from more efficient operations in the production of steel, the conservation of eyesight in industry, the elimination of flaws in steel products, the development of light-weight forgings, the lamination of timbers, to the modification of coking methods so that midwestern coal now can be utilized for coke.

The actual research work has been done by industrial and academic laboratories and groups employing thousands of experts. Moreover, in instances where research has not been of immediate commercial value but has been necessary to the prosecution of war, the O. P. R. D. has supplied the funds.

A large part of the activity of O. P. R. D. has been in advising industry of more efficient production processes. For instance, this assistance has included the development of processes for the production of alumina from clays and other materials available in this country; as a result, West Coast plants are expected to come into operation this year to supply alumina from clays and other minerals to make the United States independent of foreign bauxite supplies.

Improvements in the blast furnace operations of iron and steel have resulted in an increase of more than 10 per cent in the daily production of test furnaces. This was accomplished without any increase in man-power. and steel castings have been studied as a substitute for forgings in aircraft with excellent results, including a substantial reduction in man-power.

Methods of laminating smaller timbers with water-resistant resin glues have been developed to replace large timbers which have not been available for ship construction.

More than 2,000,000 ft. of laminated wood have been used in military vessels and the prospects are that laminated wood will be used to meet railway requirements for large timbers after the war. As the result of extensive research programs the spectographic analysis of metals and alloys and the fluoroscopic inspection of castings have eliminated the necessity of employing X-ray photographs. Already this fluoroscope has stepped up production by permitting the inspection of small castings for defects while the castings move past the instrument on a carrier. These are just a few of the developments that point to the many new and improved materials that will be available to the railways after the war.

### Not the Kind of Talk We Hear from Political Leaders in America

"There is one thing we shall certainly not do. We shall not bid for votes or popularity by promising what we cannot perform, nor shall we compete with others in electioneering baits and lures. It would be very easy for us all to promise, or even to give each other, presents, bonuses and gratuities in a most enthusiastic manner; but if we woke up in the morning and found that the pound sterling only bought five shillings worth of goods or services, we should have committed a great crime.

"We should have committed the crime of cheating, of cheating soldiers and workers in this country of a nest egg, very often amounting to 200 or 300 pounds, which millions of people acquired by their faithful discharge of duty and their thrift and self-denial during the war. . . .

"It is no easy cheapjack Utopia of airy phrases that lies before us. . . . If we are to recover from the measureless exertion of the war, it can only be by a large release from the necessary bonds and controls which war conditions have imposed upon us. No restriction upon the well-established liberties that is not proved indispensable to the prosecution of the war and the transition from war to peace can be tolerated.

"Control for control's sake is senseless. Controls under the pretext of war or its aftermath which are, in fact, designed to favor the accomplishment of totalitarian systems, however innocently designed or whatever guise they take, whatever liveries they wear, whatever slogans they mouth, are frauds which should be mercilessly exposed. . . ."

*—From a speech by Winston Churchill to the Annual Conference of the Conservative Party.*

PRINT IN BINDING

# Handling 300 Per Cent More Traffic

**Santa Fe hauls vital war materials across desert with Diesel-electric road freight locomotives**

Four of the Diesel-Electrics That Handle 3,500-Ton Trains Over More Than 400 Miles of Mountain Railway

A Santa Fe Freight Train Begins a 65-Mile Climb Up a Practically Continuous 1.42 Per Cent Grade

THE impact of war traffic on the desert divisions of the Santa Fe is graphically illustrated by the following figures:

| | Division | |
|---|---|---|
| | Albuquerque | Arizona |
| Year | Gross Ton-Miles | |
| 1939 ..... | 4,206,321,000 | 4,042,384,000 |
| 1943 ..... | 11,354,998,000 | 10,461,382,000 |
| 1944 ..... | 13,828,499,000 | 12,815,523,000 |

This 300 per cent increase in gross ton-miles produced an increase of nearly 500 per cent in net ton-miles, as indicated in the table. When it is realized that this performance was made on the two divisions with just about the toughest operating conditions and most acute man-power shortage on the entire Santa Fe system, the showing becomes even more remarkable. A specific example of this rush of business is that on November 28, 1944, the Santa Fe handled 1,644 carloads west out of Winslow. A large percentage of this tonnage was handled by the 68 four-unit, 5,400-hp. Diesel-electric road freight locomotives which haul all the through freight trains on these two divisions.

A wide variety of operating handicaps exist on these desert divisions. Intense summer heat is contrasted with bitter winter cold and heavy snows in the higher regions. Numerous mountain ranges are crossed on heavy gradients with considerable curvature. Water scarcity is always present and rises to acute shortages in certain seasons of every year. In addition, transcontinental traffic, both east and westbound, pours into the funnel supplied by these two divisions from the complicated networks of Santa Fe lines to the east and from the Santa Fe California lines to the west. There are no detours or alternate routes. Whatever transcontinental traffic the Santa Fe handles must traverse these two divisions. Fortunately, except for a short gauntlet over the Canyon Diablo bridge west of Winslow, the main lines of both divisions are double-track throughout. In this double-track operation, in the interests of better grades, the eastbound and westbound tracks are frequently a considerable distance apart and left-hand running is resorted to over most of the Albuquerque division for the same reason.

**Freight Handled—Santa Fe Desert Divisions**

Net Ton-Miles (Thousands)

| | Division | |
|---|---|---|
| | Albuquerque | Arizona |
| Year | | |
| 1939 ..... | 1,272,423 | 1,265,329 |
| 1940 ..... | 1,493,408 | 1,506,194 |
| 1941 ..... | 2,320,922 | 2,223,600 |
| 1942 ..... | 3,578,927 | 3,552,501 |
| 1943 ..... | 4,351,993 | 4,138,227 |
| 1944 ..... | 5,334,838 | 5,053,486 |

## Two Divisions Involved

The Albuquerque division consists of three main line districts, the first district extending between Belen, N. M., and Gallup, 143.2 miles. The second district extends between Gallup and Winslow, Ariz., 127.7 miles, the division headquarters being at the latter point. The third district extends between Winslow and Seligman, Ariz., 142.7 miles, where the Arizona division takes over.

A fourth district comprises the line from Ash Fork to Phoenix, 193.7 miles. With further branch line districts aggregating 236.1 miles, the total operating mileage of this division is 870.8 miles, of which 415.9 are double-track.

The Arizona division also consists of three main line districts, the first extending between Seligman, Ariz., and Needles, Calif., 149.0 miles, the division headquarters being located at the latter point. The second district comprises the line between Needles and Barstow, Calif., 167.6 miles, connection being made with the Los Angeles division at the latter point. Both of these districts are double tracked.

The third district extends north from Barstow to Mojave, 71.4 miles, thence joint operation with the Southern Pacific to Kern Junction, 70 miles, where connection is made with the Valley division. Secondary and branch line districts aggregating 150.8 miles bring the total of the Arizona division to 538.8.

As stated, all of the Santa Fe's transcontinental traffic must move over the Albuquerque and Arizona divisions. Between Dalies and Winslow, although the continental divide is crossed at an elevation of 7,244 ft. near Gonzales, just east of Gallup, the grades are easy against westbound traffic, being only 0.6 per cent for most of the distance.

The railway between Winslow and Barstow offers a violent contrast. A grade of 1.42 per cent begins at Winslow at an elevation of 4,855 ft. and con-

tinues practically unbroken to the summit at Riordan, 7,310 ft. high and 65 miles from Winslow. From Riordan the grade line is broken but generally descending to Williams, from which point there is an abrupt rise of 185 ft. in 3.4 miles to Supai. In the next 19.6 miles to Ash Fork, there is a drop of 1,804 ft., which is negotiated westbound on downgrades of 2.6 per cent for approximately 10 miles and 1.8 per cent the rest of the way, the railway winding along the shelf of a cliff in a deep canyon. A grade of 1.42 per cent for approximately 10 miles is then encountered and the line climbs to an elevation of 5,663 ft. at Crookton, then with the exception of an adverse grade of 1.42 per cent east of Yampai the line drops nearly a mile in the next 160 miles to 483 ft. in the Colorado river valley near Needles. The rest of the distance into Barstow involves several long stretches of 1.4 grade.

These grades required a great deal of double-heading in both directions and, in an area of acute water scarcity, the water requirements were tremendous. At certain locations the Santa Fe has built dams to augment the water suuply, but, in this area of scant rainfall and quick seepage of what little there is through the porous soil of volcanic formation, the requirements could not be met without constantly hauling water in tank cars in large quantities, as explained later.

## Diesels Decided Upon

Faced with these problems, plus an extraordinary traffic, the Santa Fe decided upon practically complete Diesel-electric operation of its freight trains on the main line between Winslow, Ariz., and Barstow, Calif. This road had had much previous experience with Diesel-electric switchers and with Diesel-electric passenger locomotives on its large fleet of streamline, high-speed passenger trains, so that it was not embarking upon a strange field in its purchases of Diesel-electric road freight locomotives, which has by now resulted in the delivery of 68 four-unit 5,400-hp. locomotives for use on the Albuquerque and Arizona divisions. They now haul all main-line freight trains, except the locals.

The results have been numerous, entirely apart from the fact that the Santa Fe would have been hard put to it to handle the steeply ascending traffic without this additional motive power. The average utilization of these new locomotives is over 10,000 miles per month. Where formerly it was necessary to double-head locomotives practically all the way for 459 miles because a single steam locomotive could not handle in excess of 2,000 tons over any of these districts, a single four-unit Diesel-electric now handles between 3,400 and 3,500 tons without helper service anywhere along the line except eastbound from Ash Fork to Supai on 1.8 grade for 23 miles. Since up to 6,000 tons can be handled into Winslow from the East, the improvement in yard and other operating conditions at Winslow is obvious.

In this desert country, the elimination of the necessity of stopping to take water at frequent intervals is of paramount importance. Formerly, while the line was handling only about one-third of its present traffic, it was necessary to haul a million gallons of water per day into Ash Fork. Only 360,000 gallons are now being handled and this is for the steam locomotives on main-line passenger trains and on all trains on the fourth district, which extends south from Ash Fork to Phoenix. The 15 cars of water that used to be hauled into Angell every day have been reduced to three cars a day now. At certain seasons of the year it was also necessary to haul water into Williams. Water is caught in the canyons nearby behind dams, but, until now, this was never sufficient to last through the dry spells.

The dynamic brakes with which these new engines are equipped have proved a further advantage. This brake operates on the locomotive only and even on such steep drops as the 2.6 per cent grade between Supai and Ash Fork, little application of brakes to the car wheels themselves is necessary. Where formerly it was frequently necessary to cut out cars at Ash Fork and elsewhere because of wheel defects brought about by the necessarily excessive brake applications, the setting out of cars for this reason is now of infrequent occurrence.

The average utilization of the new locomotives, based on actual hours on trains compared with the total hours in the month, has been 91.5 per cent. This high average has been maintained even during months when traffic has fallen off slightly by running the locomotives from Winslow east to Belen, when they were not all needed west of Winslow. At Barstow, the new locomotives, which, because of having control cabs at each end, do not have to be turned, are in and out of the terminal in an average of about 1 hr. 30 min. So far, it is contemplated heavy repairs will be taken care of at San Bernardino, Calif., 82 miles west of Barstow, where the main shops of the Coast Lines are situated. However, arrangements have been going ahead steadily to do more and more of this work at Barstow where modern facilities are being completed. At present, all necessary overhauls of traction motors are made at San Bernardino, as well as the periodical inspections, which take place every 2,000, 4,000, 6,000 and 12,000 miles. All wheel changes are made at Winslow.

Locomotives coming into the terminal and not requiring repairs average 2 hr. 30 min. in the Winslow terminal before returning west with a train. Counting those which are repaired at the shops there, the average turning time is 6 hr. 20 min. At the start, the only shop facility at Winslow was an enginehouse. This has been elaborated into an efficient Diesel repair shop.

The Diesel mechanics in these shops, as well as the engine crews on the road, were all trained on the ground by the Santa Fe, with the addition, on the part of some road foremen of engines and Diesel supervisors, of lessons in Diesel operation taken at the builder's plant at La Grange, Ill. The Electro-Motive instruction car spent much time on the two divisions. At first representatives of the builder rode these locomotives to check their performance and further instruct road crews. This duty is now performed by assistant Diesel supervisors, who ride over the two divisions in much the same manner as road foremen of engines.

## How It Is Done

As stated, 1,644 carloads were handled westbound out of Winslow on November 28, 1944. On the same day, 1,301 cars were handled into Winslow from the West. A large percentage of the latter were empties, since it was out of season for California and Arizona perishables eastbound. On that day 26 freight trains were sent west from Winslow, while 21 freight trains arrived there from the West. When the daily average of some 20 passenger trains in each direction is added to this, it will be seen that this is indeed a busy railway.

The reason that so many trains could be handled is found in the fact that, since with the Diesel-electric locomotives many stops are eliminated, freight trains are able to keep out of the way of passenger trains, the division is not clogged with light helper movements, and the freight trains spend far less time in the sidings. A recent run will serve as an example of how this was done.

The train passed the western yard limits at Winslow at 2:03 p.m., with 69 loads, hauling 3,485 tons. After a steady climb all the way, Flagstaff was passed at 4:16 p.m., the 58.5 miles, largely on 1.42 per cent ascending grade, having been run in 2 hr. 13 min. At 5:42 p.m., the train arrived at Supai, where the first stop was made to set up the retainers for the drop down the 2.6 per cent grade into Ash Fork. Thus the train ran 95.7 miles non-stop in 3 hr. 40 min., climbing stiff grades most of the way.

Speed is rigidly limited to 15 m.p.h. on the sharp descending grade and curves for 19.6 miles into Ash Fork, which station was passed at 7:02 p.m., or 5 hr. for the 115.3 miles from Winslow. The 27.5-mile climb from Ash Fork to Seligman, involving approximately 10 miles of 1.42 per cent ascending grade, was made in 1 hr. 26 min. and, after changing crews, the train departed westward over the Arizona division within a few minutes. The entire run of 142.7 miles over this district was made with nearly 3,500 tons in 6 hr. 26 min., with only one brief intermediate stop. That this was by no means an isolated performance was indicated by a study of the train sheets and by the fact that three more Diesel-powered freight trains pulled into Seligman immediately after the first one arrived, two of which had made the same time, while the third had run the distance in 10 min. faster time. These trains, also, had made no stops except at the Supai summit.

# *Perfect Shipping Month Needs Support*


*Typical of the Inferior Cartons Being Re-Used for the Shipment of Eggs*

PRELIMINARY estimates of the Freight Claim division of the Association of American Railroads indicate that during 1944 Class I railroads paid claims for lost and damaged freight amounting to about $65,000,000. Although only about 50 per cent of the total tonnage and 40 per cent of the total ton-miles were classed as civilian goods, they accounted for an estimated $60,000,000 or 92.6 per cent of the total claims; 31.5 per cent of the claims were the result of handling l.c.l. freight, the remainder being charged to carload movements. On a revenue basis freight claims amounted to 0.75 per cent of the gross freight revenues during 1944 as compared with 0.55 per cent during 1943. Claims on l.c.l. freight were 4.45 per cent of l.c.l. revenues during 1944. Such figures bring into prominence more than ever the need for support of the ninth annual Perfect Shipping Month—April 1945.

## Civilian and Military Claims

In analyzing these claim payments the striking difference in the magnitudes of civilian and non-civilian claims is at once apparent. The discrepancy is even more noticeable when it is realized that the military traffic includes virtually every item contained in the civilian commodity lists plus many others beside. Further analysis points to two significant differences between civilian and non-civilian freight movement. First, there has been marked deterioration in the quality of the packaging materials available for civilian use while those used by the various military bodies and lend-lease not only have not deteriorated in quality but have actually improved. The Army and Navy, Lend-Lease and other government bodies have recognized the necessity of properly packing goods for export, and particularly for protection against added war-time hazards, and have conducted extended and rigorous tests of various packaging methods. These tests have subjected individual packages to severe falls on each corner and on each edge and not infrequently have concluded with a period of prolonged immersion in water. As a result of these tests rigid specifications have been established for shipping containers and extremely sturdy containers have been developed and placed in service. About the only criticism that has been offered against the specifications resulting from this research is the failure to allow for a minimum crushing strength. Engineers of the Freight Container Bureau of the Association of American Railroads have assisted in this work.

## No Active Civilian Training

While this highly beneficial research into packaging methods has been undertaken for military and lend-lease supplies, civilian shippers have been forced to rely on an ever-diminishing supply of new packaging materials. Further, what new materials have been available have frequently been of inferior quality, due to government demands for the bulk of the first class materials. Recognizing this situation, tariffs have been revised to permit re-use of paper containers and relaxing standards for new ones. The re-use of paper cartons requires first, extreme care in selecting only those containers in good enough condition to have a reasonable chance of moving to destination safely and second, complete obliteration of former shipping marks to prevent shipments going astray. Unfortunately not all shipping clerks are qualified to make such selections and many do not realize the importance of removing old markings. In addition to having to accept inferior packing materials, railroad and civilian shippers have been unable to secure top grades of lumber for blocking and bracing, further contributing to the rising ratio of civilian loss and damage claims.

The second great difference between military and civilian shipments is one of man-power. It is of course true that both governmental agencies and civilian shippers have had to utilize much unskilled help in shipping positions, but at that point the similarity stops. The United States Forest Products Laboratory at Madison, Wis., has trained over 10,000 men in packaging of commodities for overseas shipping, while the Army and Navy, aided by the Freight Container Bureau, have trained other thousands in better loading methods. By contrast, most civilian shippers and most railroads have no active training programs for the instruction of new men either in packaging or in loading methods and are still placing new men alongside of older men to break in "on the job."

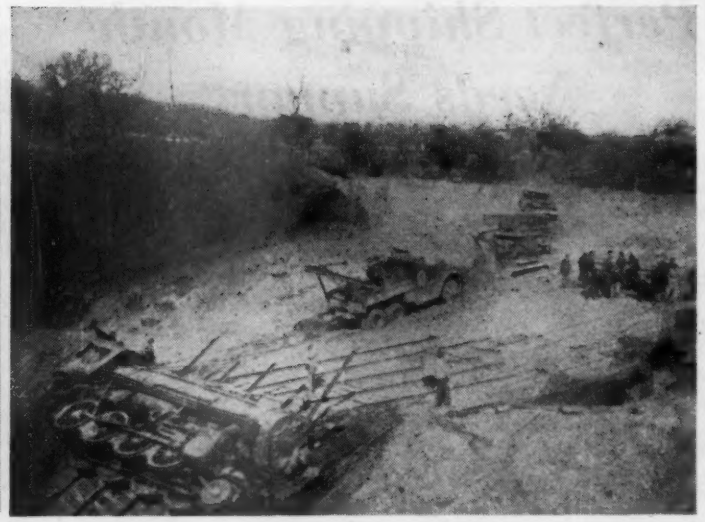
While this method has been fairly satisfactory in normal times when highly skilled men are working with the new employee, it can hardly be considered to be effective when the "old hand" is himself an inexperienced man.

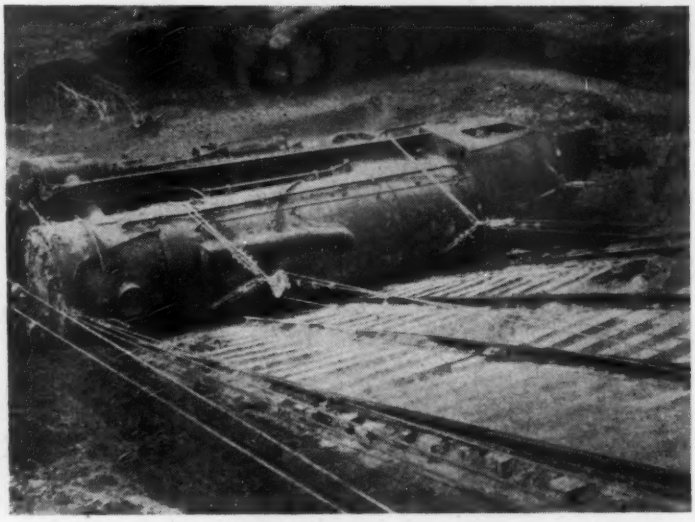
In an effort to reduce this huge loss, which is admittedly reflected in increased freight rates, the National Association of Shippers Advisory Boards has designated April as its ninth annual Perfect Shipping Month and, in cooperation with shippers and carriers throughout the country is conducting a nationwide publicity campaign in an effort to stress the necessity of proper packaging and handling of freight. It has issued, in addition to posters, a pamphlet stressing the necessity of properly marking shipments, careful selection of cartons including the inner packing, and careful handling. The pamphlet points out that the claims paid on lost and damaged freight during 1944 would have purchased 100 B-29 Super-Fortress bombers, nearly enough for one additional operational air fleet against Japan. The perfect shipping campaign is under the direction of J. E. Bryan, general traffic manager of the Wisconsin Pulp & Paper Manufacturers Traffic Association and general chairman of the National Management Committee of the Shippers Advisory Boards.

* * *

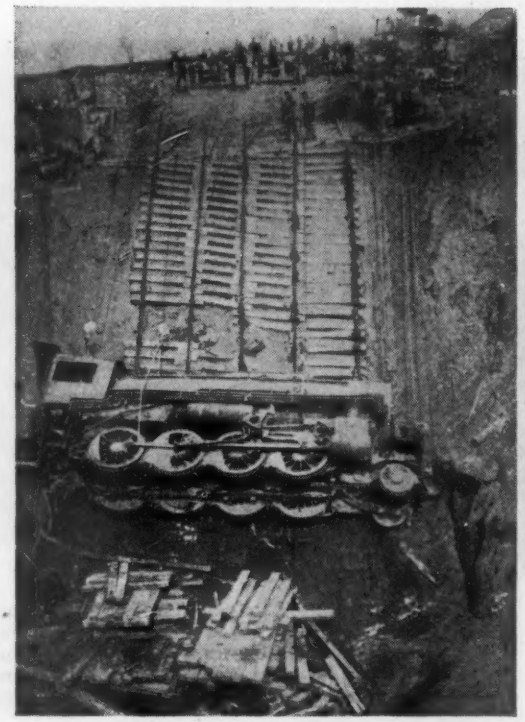
U. S. Army Signal Corps Photo

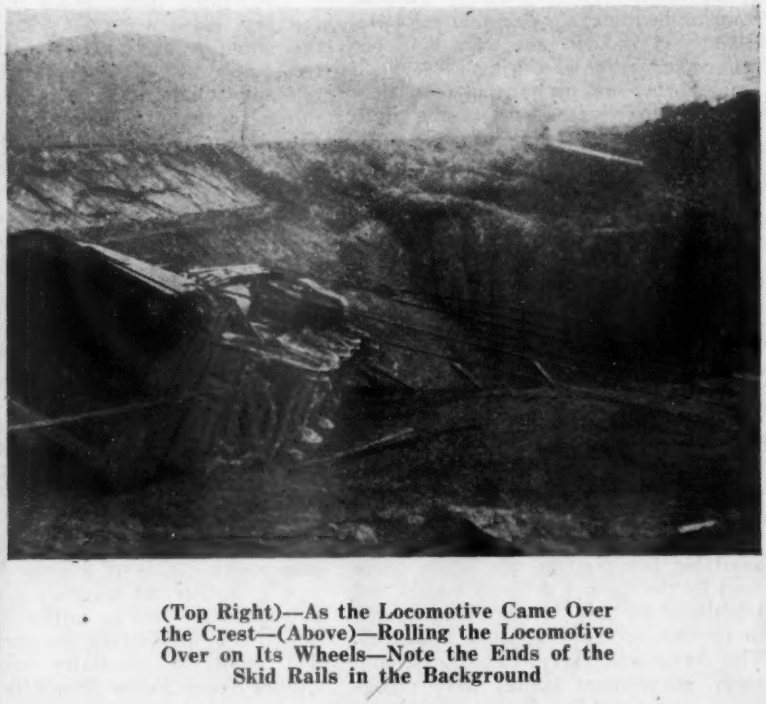
**Lt. Chester C. Slaughter, of Mexia, Tex., and the European Theater of Operations, Examines Cars Loaded with Captured German Barbed Wire, Once Intended for Use Along the Roer River**





**(Upper Left)—The Mat Laid on a 45-Deg. Slope Up Which the Locomotive Was Slid—(Left)—How the Slings Were Placed on the Locomotive—(Lower Left)—The Locomotive on Its Way Up**





**(Top Right)—As the Locomotive Came Over the Crest—(Above)—Rolling the Locomotive Over on Its Wheels—Note the Ends of the Skid Rails in the Background**

# A Military Railway Wrecking Job

*Part of the "Orchestra" at the Winches—a British "Cat" Driver Is in the Foreground*

**How the 701st Railway Grand Division recovered a locomotive from the bottom of a deep ravine almost by hand**

THE 701st Railway Grand Division recently had an unusual wrecking job to recover a 2-8-0 U. S. A. locomotive which had slid down the side of a 60-ft. fill when the fill started to flow from the effects of unusually heavy rains. The locomotive came to rest at the bottom of a deep gully crossways of and bridging a swollen creek.

To strengthen and reinforce the fill to restore the main line to operation, it was necessary to move the locomotive some 20 ft. to accommodate additional cribbing to hold the reinforcement of the fill. This was accomplished by building a platform of ties bridging the creek to swing the locomotive around and in the clear of the fill. After operation was restored during the continued rains, the work of recovery was held up until the surrounding terrain partially dried out to give stable footing for recovery operations.

When weather conditions were more favorable, Col. J. E. Guilfoyle, commanding officer of the 701st Railway Grand Division, gave orders to have the locomotive and tender recovered and sent to the shops for repairs. The head of the equipment department, Lt. Col. A. G. Hentz, and the head of the engineering department, Major T. R. Patterson, were to be in charge, and delegated Capt. G. S. Glaiber, railway mechanical engineer, and Capt. J. R. Wartchow, railway track supervisor, to supervise the job at the scene.

Colonel Hentz outlined a general scheme of recovery and work was started immediately in grading and building of a skidding mat on the 45-deg. slope where the engine was to be dragged up (parallel to the track fill). This mat consisted of five rails, spaced and screwed down to ties. One railway operating battalion* furnished two bulldozer drivers for the grading, and another sent a track-laying officer and a sergeant to supervise the Italian gang doing the work. Six 5-ton hand winches were obtained from the British Transportation Stores and many blocks and wire cables obtained from a port battalion.

It being necessary to anchor the winches securely, trenches about 10 ft. deep were dug behind them and they were wire cabled to a bundle of cross-ties and these buried in the trenches. When all the preliminary work of anchoring the winches, preparing the slings for the locomotive, and grading was completed, a nearby British school of mechanical engineers lent two "students" and caterpillars with powerful winches to assist in the heavy pulls and a 10-ton highway wrecker, with a driver, was also obtained. The hand winches were double blocked to the slings and the wrecker and "cats" double blocked. The system was for the power winches to pull a bit and then the hand winches took the strain to relieve the wrecker and cats preparatory to taking another hitch. The hand winches acted mainly as checks on the mechanical winches. The hand winches required considerable labor, six men to a winch, a total of 36 men, to turn them, even in low gear. The Italian part of the operation was led by an interpreter who, in order to synchronize the operation of the winches, stood on an empty oil drum for a "podium" and, waving a baton with many Italian exclamations, conducted the "orchestra."

## Track Built Under Engine

When the locomotive was finally raised to level ground, it was rotated parallel to the right-of-way and rolled over on its wheels. A track 400 ft. long on a 10 per cent grade was built under the engine after it had been jacked up, and this spur curved sharply to the main line. In the meantime a road was built near the top of the fill, both as a reinforcement and to permit movement of the tender body which had been dragged to the opposite bank during the first operation in reinforcing the fill. The tender body was slid on its side over this road, and with much difficulty on the steep slope, it was placed on its trucks and pulled to level track near the main line. Two machinists were sent up from a railway shop battalion to take off the side and main rods and prepare the engine and tender for road operation.

## Winches Strategically Placed

The curvature on the 10 per cent grade was of necessity very sharp and the track had to be taken up behind the engine as it was advanced and pulled over. The engine was let down grade again to negotiate the curve without derailing. As a safety precaution, winches were strategically placed and cables connected to the engine should the wrecker cable break. Removing the track behind the locomotive was an additional safety measure. Finally, the level track was reached and the engine coupled to the tender.

Permission to open the main-line track was obtained from the chief dispatcher and, while the highway wrecker was switching the 2748 onto the main line, a sister engine, 2769, was coming up to tow her back to the shops to have the engine made serviceable again for war duty.

The entire job was completed after a siege of weather that had run its gamut —snow, rain, wind, mud, sand and mostly bitterly cold days.

* The designations of the various battalions were removed by the censor.

# Construction and Maintenance Forces Plan Large Programs of Work in 1945

*Many Engine Terminals Will Be Improved During the Year*

**Schedule many addition and betterment projects and contemplates record programs of track and structures upkeep and repair as essential to meet demands of war traffic**

**The railways of the United States and Canada plan construction programs in 1945 at substantially the same level as last year when expenditures for improvements, reaching $300,000,000, were the largest in 14 years. For maintenance of way and structures, the budgets of these same roads call for expenditures of $1,475,000,000, or approximately $175,000,000 more than in 1944, and the largest amount ever spent in one year for these purposes. Details of these programs are discussed in this article, which is based on information secured from the ranking engineering officers of 31 selected roads.**

ALTHOUGH the railways are in need of new facilities of almost every type, a need that is serious in many cases, the construction programs for 1945 will be largely a continuation of those items that have been given primary attention during each of the last three years. Such programs will be confined largely to improvements that are designed specifically to relieve congestion at terminal and intermediate yards, to expedite the movement of trains between terminals, to facilitate the turning of locomotives to permit their more prompt return to road service, and to improve the facilities for repairing locomotives and cars—all of special importance because of the extraordinary volume of traffic being handled.

Despite the limitations thus planned on the range of projects to be undertaken, there has been no easing of the need for many other types of construction. The prospects are, however, that sheer inability to obtain the materials and labor to carry out projects other than those that are most pressing in the interest of the war effort, promises to present an insurmountable obstacle to the prosecution of these other projects, regardless of their desirability.

While aggravated by war conditions, the necessity for many of the improvements that will be made during 1945 had its origin partly in the depression years when railway construction, while not entirely suspended, was so curtailed by lack of funds that the need for improved facilities ran far beyond the possibility of supplying them; its origin can also be traced in part to the fact that few railway facilities, even those that were modern at the onset of the war, were designed with capacities adequate to handle the extraordinary traffic that must now be kept moving.

## Many Facilities Obsolete

Furthermore, during the years when railway construction was at low ebb, methods of operation were changed radically, causing a vast accumulation of facilities that had become obsolete with respect to the efficient handling of traffic. As a result, an enormous backlog of needed revisions and enlargements of facilities already existed by 1940. Thus, when traffic began to increase with preparations for war, and continued to do so after our entry into the war, the railways were caught not only with a multitude of outmoded facilities but with many others that were inadequate in capacity to handle the great volume of business that was thrust upon them.

Adding to the difficulties with which the railways had to contend, the character of much of their traffic changed almost over night, and much of it came from entirely new sources, thus demanding facilities that had not been required previously. Another important factor that made existing facilities still further

outmoded was that much of the added traffic did not flow in the usual channels since it was often necessary to change routings materially. An outstanding example of this was the almost immediate reversal of the preponderant tonnage from eastbound to westbound on the lines serving the Pacific Coast. In this connection, it is expected that this westbound tonnage will increase still further as the tempo of the war with Japan increases.

With increased traffic, funds once more became available for improvements and, in 1942, the railways began to carry out greatly expanded programs of construction. In this, however, they were handicapped severely by growing shortages in materials that affected all but essential war construction, so that only a part of the programs planned were completed. Since then these handicaps have continued, and have been greatly aggravated by serious shortages in labor. Last year, because of the extreme need for many of the projects that were proposed to facilitate the movement of the war-created traffic, railway construction budgets were larger than for either 1942 or 1943, although, as stated previously, primary attention was given to projects that were calculated most to speed up the dispatch of trains and their movement over the road.

## Still a Pent-Up Need

Despite the number of projects of these types that have been completed during the last three years, there still remains a pent-up need for a vast volume of railway construction of all classes, not only to meet immediate requirements, but also to care for post-war needs, when competition is certain to be keener than any that the railways have faced in the past. Yet the immediate requirements for improvements are so pressing and the difficulties surrounding the prosecution of construction projects are so great that the present efforts of the railways are being directed almost solely to getting the work done now that is most essential for the conditions of today.

Concretely, expenditures for improvements by the roads of the United States and Canada during 1945 will total substantially the same as was actually spent in 1944, or $300,000,000. This forecast is based on information secured from the engineering officers of a selected group of typical roads in the United States and Canada concerning their plans for the current year with respect to both construction and maintenance. Inquiries to determine the volume and character of construction that will be undertaken in 1945 elicited replies from the chief engineers and engineers maintenance of way of 31 roads, representing almost 50 per cent of the operated mileage in the United States and 1 road in Canada.

## Projects Planned

Of these 31 roads, 22 gave details of their proposed expenditures, 5 gave partial information, and 4 said that they do not work on a budget system or that they had not completed their budget, although all but one of this last group expect to do substantial amounts of work during the year. Seven roads stated that they expect to do more improvement work in 1945 than they did in 1944; 11 reported that their expenditures will approximate those of the previous year; and 9 expect that their expenditures for improvements will be slightly below those of 1944; while 4 gave details of what they propose to do without comparing their present plans with the actual expenditures for last year. In addition to the 31 roads already mentioned, 2 others replied that conditions were so unsettled that they were unable to predict what their activities for the year will be.

Among the larger and more important projects planned, which were listed by 14 roads, are yard improvements ranging from the lengthening of a few yard tracks or the rearrangement of track layouts, to extensions and enlargements of considerable magnitude. Approximately the same number of roads expect to improve engine-terminal facilities, either in connection with yard improvements or independent of them. Some of the plans involve larger turntables and longer engine pits and stalls; some contemplate additions to existing enginehouses; in a few cases they include major or complete revisions of existing terminals, including cinder pits, water and coal-handling facilities, and heating and water lines in enginehouses and other buildings that are incidental to the operation of the terminals.

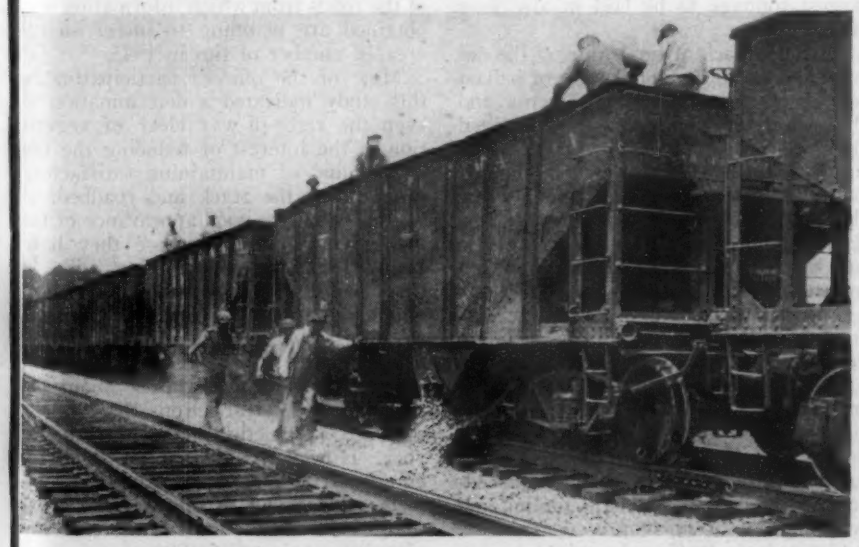
While the budgets contain a large number of shop projects, there are not so many of major magnitude individually as there were last year, although the total expenditures for this class of facilities will be about the same. Plans for such work range from the installation of new shop machinery and tools, and slight rearrangements or enlargements of existing buildings, to new structures and improved facilities for the repair of locomotives and cars. This year also, several roads have included new shops for the maintenance and repair of Diesel locomotives, or enlargements of and other improvements to shops of this type that were constructed only three or four years ago.

## More Signal Installations

Water and fuel stations have a large place in the plans for improvements to be made in 1945. Plans for the former include both increased and more dependable supplies, larger wayside storage, more pumping capacity, faster delivery to locomotives, better treatment and enlarged treating capacity. With the increasing number of Diesel locomotives in road service, a considerable number of these projects are for supplying water to these locomotives. In all sections of the country, the railways are including fuel stations to serve both steam and Diesel locomotives.

Train speeds and traffic density have increased so much that many districts or parts of districts lack the capacity to handle trains without delays. In this situation many roads are planning to obtain the needed capacity by making installations of centralized traffic control over stretches ranging from a few miles to considerably more than 100 miles. However, since the successful operation of C. T. C. requires ample facilities for meeting and passing trains, projects involving the extension and relocation of existing passing sidings and the construction of new sidings to obtain desirable lengths and correct spacing, have been included in the budgets of many roads. In addition to these additions and betterments, more than half of the roads that supplied information as to their plans for the year have included installations of automatic signals and new interlockings, and rearrangement and replacements of existing interlocking.

Even after three years of record-breaking traffic, in the face of many insurmountable difficulties, the tempo of



**More Ballasting Work Will Be Carried Out Than in Any Year Since 1930**

handling it continues at a remarkably high level. Among other effects, this has resulted in a continuation of high average speeds for all trains, and these speeds have disclosed numerous cases where line revisions to reduce curvature are desirable, while increasing traffic densities have made some of these improvements imperative if delays to trains are to be avoided. Roads that have been operating high-speed passenger trains have already made many line revisions, some of which have involved work of considerable magnitude. However, most of the larger projects that should be carried out have been deferred for lack of funds. Today, however, it is becoming more and more important that these improvements be made. In addition, not a few roads are finding that in some places heavy grades are hampering the movement of traffic to such an extent that, in the interest of efficient operation, they must be reduced. As a result, the budgets for 1945 contain more line and grade revisions than have been planned at any time for more than 15 years.

With only one or two exceptions, none of the roads participating in this study have included any provisions for new buildings, other than those already mentioned as being planned as a means for facilitating the movement of traffic directly or for expediting the handling or repair of locomotives and cars. These latter projects, however, include a relatively wide range of structures, such as enginehouses, shops, coaling stations, pump houses, interlocking towers, battery and relay houses and other buildings incidental to the construction or improvement of other facilities. On the other hand, many buildings will be enlarged or remodeled to permit quicker repairs to cars and locomotives, to facilitate the handling of passengers or freight, and to expedite other operations that effect the movement of traffic.

Almost all of the roads indicated the need for bridge replacements or strengthening, and five of them included substantial amounts, ranging up to $2,700,000, for capital improvements to these structures. Other items of magnitude proposed include one stretch of second main track, a minor track elevation, extension of right-of-way grading and strengthening of the roadbed, a number of drainage projects and miscellaneous work.

## More for Maintenance

Although the expenditures for maintenance of way and structures attained a new record in 1944, when they amounted to $1,262,902,237 for the railways of the United States alone, the budgets for 1945, as now planned, indicate an increase of about 5 per cent over the actual expenditures for last year. This is in accordance with information supplied by the same 31 roads from which information was obtained concerning their improvement plans. In estimating their maintenance expenditures for the year, 26 of these roads gave details of their maintenance programs, while the remainder said that their work would be of substantially the same character as was carried out last year.

Although seven roads reported that they intend to spend less on maintenance than they did last year, only one of them is planning to make more than a slight reduction, and although 12 others reported that they will spend the same or slightly more than they did in 1944, the remainder expect to increase their expenditures by amounts ranging from 5 to 60 per cent. On the basis of the budgets of all of these roads, it is estimated that the railways of the United States and Canada will spend $1,475,000,000 for maintenance in 1945. This sum, combined with the $300,000,000 that will be spent for improvements, brings the grand total for construction and maintenance to $1,775,000,000.

## Need More Rail

Measured by gross-ton miles of traffic, there have been serious deficits in the amount of new rail laid in each of the last 15 years. Since it is probable that traffic during the year will remain at its present level or will increase slightly, and since it is also probable that average train speeds will continue to rise, it is not surprising that rail constitutes a major item in the budgets of all of the roads participating in this study.

With only one or two exceptions the officers who supplied information in this regard are planning to lay more rail than they did last year. The railways have estimated that they will need approximately 2,900,000 net tons of new rail in 1945, and earlier there was excellent prospect that they would receive about 2,400,000 tons, or about one-third more than was actually laid in 1944. However, the allotment for the first quarter was only 507,000 tons and that for the second quarter was slightly less. This is certain to affect the total amount of new rail that will be laid in 1945, but if further cuts are not made, the allotments for the year will still permit the largest tonnage to be laid in any year since 1929.

Owing to lack of funds during the depression years, the application of ballast fell short of normal requirements and the railways surfaced and resurfaced their tracks with the application of little or no ballast. Although larger amounts have been applied during each of the last three or four years, the volume of new ballast applied in any of these years did not even approach the volume applied annually for the ten years prior to 1929.

For this reason, despite the increasing amounts of ballast applied during recent years, it has frequently been necessary to continue the practice of surfacing without new ballast, and this condition will continue to prevail until it becomes possible to apply much larger amounts. In addition to these exceedingly large deficits, ballast is fouling and wearing out at an unprecedented rate under today's traffic. As might be expected, therefore, the budgets for 1945 contain provision for an even larger amount of ballast than was applied in 1944, during which more ballast was installed than in any year since 1930. In fact, each of a number of roads expect to apply well in excess of 1,000,000 cu. yd. In confirmation of this estimate of enlarged ballast programs, the budgets also contemplate the purchase of 408 tie-tamping outfits ranging up to 12 tools each, and of 258 unit tampers, almost all of which will be additions to similar equipment now in service.

Obviously, the enlarged ballast applications planned demand that the roadbed be of full section and that the drainage be adequate to insure full support and stability for the newly-surfaced track. For this reason, the budgets for the year provide for a considerable increase in bank restoration or widening, right-of-way leveling, and for both surface and subsurface drainage, corresponding roughly to the amount of track to be ballasted. On the other hand, certain roads expect to undertake some grading and drainage projects of relatively large magnitude without reference to the application of ballast. While some of this work will doubtless be handled by contract, a large part of it will be done with company forces, as is indicated by the fact that the budgets contain provision for the purchase of 658 units of earth-moving equipment, by far the largest number of units of this class for which such provision has ever been made.

## More Ties Will Be Renewed

During the last four years the supply of ties available to the railways has been below normal requirements, although traffic during this same period has been destroying ties at an accelerated rate. As a result, it is now becoming imperative that many doubtful ties be removed from the track instead of being left in for another year, as has been necessary in numerous cases in recent years. Not only for this reason but also in connection with the enlarged rail and ballasting programs planned, more than half of the roads from which information was obtained are planning to insert an increased number of ties in 1945.

Most of the officers participating in this study indicated a determination to keep the right-of-way clear of vegetation in the interest of reducing the fire hazard and of maintaining satisfactory drainage of the track and roadbed, as well as to insure good appearance of the property. For this purpose they have included 223 weed-destroying units in their budgets for the year, in addition to which a considerable volume of chemical weed destroyers will be used if they are available.

There is some uncertainty about the severity of the restrictions that will be applied to structural steel during the year. However, the need for strengthening certain steel spans and the complete replacement of others is so great that a considerable number of roads are planning projects of these types on a

(*Continued on page 552*)

# The Railways Need More Basic Research

**"A group technically qualified and properly equipped to correlate fundamental research" would be a clearing house to agencies now engaged in railway research**

*By A. E. PERLMAN*
*Chief Engineer*
*Denver & Rio Grande Western*

TODAY in all parts of the nation, new frontiers are being explored intensively. A rapidly expanding science is yielding new designs, processes, and materials so vital to the early success of our armed forces. Never before in history has scientific research been carried on at such an accelerated tempo. In his recent report to the Secretary of War, General Arnold declared, "The first essential of the air power necessary for our national security is pre-eminence in research . . . the American people must never again assume . . . that numbers of aircraft and quantities of equipment make an air force."

## Many Research Agencies

As a result, many railroads are building up specialized organizations to explore new economic and scientific possibilities. The Mechanical and Engineering Divisions of the A. A. R. in conjunction with the A. R. E. A. and the American Society of Mechanical Engineers have committees making careful studies of many of the problems relating to engineering and mechanical research. These committees have utilized the facilities of various universities to achieve splendid results in the solution of a number of vital and pressing problems. They have also utilized research and testing laboratories owned by manufacturers of railway equipment. The American Railway Car Institute, the Locomotive Institute and the wheel associations have organized cooperative research projects. And many manufacturers of railway materials, equipment and appliances are spending considerable sums on individual studies in their own particular field of endeavor. There has recently been organized the Engineering College Research Association which has for one of its primary objects industrial research of a high order. Added to this, the Association of American Railroads has an overall research committee headed by Judge R. V. Fletcher studying all phases of post-war transportation. Certainly this is an impressive array of talent engaged in active research for the railroad industry.

The Fletcher Committee has, as one of its sub-committees, a group composed of mechanical and engineering officers from some of the most progressive railroads in the country. They are studying the possibilities of engineering and mechanical research. Analyzing the activities in this field, it was found that most of the work now being done by the railways is occasioned by service failures or other pressing difficulties encountered in materials and equipment.

Studies are primarily handled through the committee type of research being carried on by the Engineering and Mechanical Divisions. Magnificent results have been accomplished in this manner. The composition of the committees, however, is such that the busy railway officers who constitute the membership do not have sufficient time away from their railroad duties to analyze exhaustively all phases of a problem. Nor do the research staffs reporting to these committees have sufficient trained personnel or adequate equipment to supply completely the basic data so vital to proper evaluation of the best in design and material. The resultant recommendations, therefore, are sometimes a compromise which many railroads have hesitated to adopt.

## A Deficiency of Basic Research

To illustrate, W. I. Cantley, mechanical engineer of the A. A. R. Mechanical Division, in his talk to the Railroad Division of the A. S. M. E. over a year ago, stated: "They (the railroads) had always engaged in applied research which is the type of research best suited to the needs and facilities of the railroad industry." Yet the fact that the railroads have no group working upon a coordinated program of fundamental as well as applied research has resulted in serious handicaps to manufacturers of railway equipment as well as to the railroads. One of the leading designers in the passenger-car field a little over a year ago, in an address to the Southern and Southwestern Railway Club, said: "Aviation has had the benefit of magnificent research, both in regard to air behavior and to structural sufficiency. Car building, on the other hand, has grown up—the hard way, so to speak. After a hundred or more years of building railroad cars, there is still no organized literature on the subject. . . . Aviation has had its Ph.D.'s—many of them. They are a different breed than the master car builder. Both have done their jobs, but after different fashion. Hasn't each something to learn from the other? We think they have and that out of that combination will come the advanced passenger-car design."

Attempting an analysis of the reasons why the railroads have left practically untouched the fertile field of basic research, many thoughtful students of railway matters say that the railroads are a service industry and as such should leave to the manufacturer all questions pertaining to fundamental research. This is difficult for me to assimilate. It has always been my thought that the prime function of a railroad is to manufacture ton miles and passenger miles at a price and with such expedition of service that no other agency can compete with us in the handling of mass transportation. Certainly other transportation agencies do not shun the valuable contributions to be obtained through fundamental research. Nor do they believe that the manufacturer of equipment should be left with the entire burden of seeking to insure the future of the industry. As witness this article written in June, 1942, by the United States Air Service, appearing in the U. S. Naval Institute Proceedings:

"Cleveland, Ohio, emerged last month in an important role aeronautically, when Dr. George W. Lewis, director of research of the National Advisory Committee for Aeronautics, officially started activities in the committee's new aircraft engine research laboratory at the airport. . . . The importance of this laboratory can't be overstated. . . . Because of the expense and the time necessary, commercial companies cannot undertake the study of radically different types of engines. It costs more than a million dollars to develop a new type. It takes years. There is not enough aspirin to go around to take care of the headaches. Getting the bugs out of new types of engines is an art, science, and profession, combined. To find out whether there is anything in some of these radical types, we need a lot of fundamental basic knowledge about them. The work has to be done by men who burn with the desire to know everything that can be known about aeronautical engines, exclusively. . . . It falls to the aeronautical laboratories not only to provide the new ideas to insure superior performance, but at the same time to prove in advance the soundness of the new designs as a whole. . . . In order to develop aircraft to the fullest, scientific research must be prosecuted with vigor and imagination."

A number of manufacturers interested in railway problems are today engaged

This is an abstract of a paper presented before a meeting of the New York Railroad Club at New York on March 15.

in basic research, some of the results of which will soon startle the entire railway industry. Do not let anyone attempt to disparage the outstanding work which is being done in this field. Yet if only the manufacturers are to engage in fundamental research, it will leave a void. For they rightly focus their attention upon the materials, equipment, and appliances in which they have a direct interest and which will bring to them a profit. Why should a steel manufacturer spend time and money in the development of an advanced rail design which will reduce the metal required by his customer? The answer is that he does not!

## Ingenious Laboratory Work

After experiencing the substantial benefits derived from the fundamental research carried on by a small group of brilliant young scientists headed by our engineer of research, Ray McBrian, I speak with great enthusiasm concerning the benefits to be derived from basic research. Two years ago, one of our research technicians attending the Photoelastic Conference at M. I. T., looked through a polaroid lens at a small amount of bentonite suspended in a beaker of water. This was merely a laboratory curiosity, but it captured his imagination. Upon his return to Denver, he made a small model of a locomotive firebox and filled it with water in which this clayey material was held in colloidal suspension.

One of the troubles common in locomotive fireboxes has been due to the uneven flow of gases through the firebox. This has resulted in cinder cutting due to the high velocity at the top of the firebox and plugging of the tubes because of the almost inert gases near the bottom. This visual method* of interpreting the action of the gases in the firebox has permitted scientific design of the brick arch and Gaines wall. And actual tests on locomotives have closely checked the results shown through this technique. This fundamental development is now being studied by the aeronautical industry, the automotive industry, the hydraulic industry, and the steel industry where a complete open-hearth model is being used in a basic study of open hearth furnace design.

## Photoelastic Studies

It is being utilized by the Bureau of Reclamation in the design of many hydraulic installations, and one of the Bureau's engineers has stated that had this technique been available in the design of the Bonneville Dam, hundreds of thousands of dollars could have been saved.

The same man whose imagination was captured by the colloidal bentonite is the one who sat watching test tubes of heated boiler water and noticed that when large bubbles were formed on the heating surface, no foaming developed. When small bubbles were formed on the heating surface, however, foaming was encountered. As a result, he developed a mechanical means for the conversion of the small bubbles into large bubbles. Never before was there any indication that this difficulty could be alleviated except by chemical means.

Through photoelastic studies he also determined that the web of a rail should be thicker near the top than near the bottom. And an actual field study of stresses in rail confirmed his laboratory findings.

It is this type of mind which our committee is seeking to put to work on fundamental problems of railroad research. The railroad officer who is immersed in pressing problems of the moment does not have the time nor does he have the mental make-up necessary to perform this type of work. He wouldn't be a good executive if he did.

With a group of scientists using this approach to railroad problems, a number of pressing needs could be fulfilled. We need not go far afield in exploring the possibilities now lying latent in three of the fundamental elements of a railroad—rail and fastenings, cars, and motive power.

## Rail and Fastenings

Until W. P. B. restrictions required standardization of certain types of rail section, one could pick the Dudley section of the New York Central, the sections which the Pennsylvania had designed, the 127-lb. section of the Kansas City Southern, the sections developed by the A. R. E. A. or those designed by the American Society of Civil Engineers, and a host of others.

It was my assignment to make a study of maintenance practices on several railroads in the middle 30's. When inquiring the reason for the use of a certain rail section by the railroad, almost invariably the answer would be "It is difficult to explain the reasons to you since you are unfamiliar with the physical conditions on our railroad." There was occasion to make a study of a certain railroad in which four engineers of adjoining properties were concerned, and each recommended the section of rail used on his own property, all four of which were different. Yet today when stresses can be computed mathematically, checked in the laboratory photoelastically, and in the field by means of strain gauges and stress coat, possibilities for scientific design and proper weight utilization offer a fertile field for study.

Hand in hand with design studies must go metallurgical investigations. Laboratory and field studies are necessary to determine the actual effect of the composition, the manufacturing process, and handling upon the performance and service. Basically, no knowledge is available regarding the best possible composition of rail. Such knowledge would lead to the elimination of undesirable components or residual impurities which affect its service life by contributing to failures for which no answers have yet been found. These are head checks, shelled spots, brittle fractures, and corrugations which increase the maintenance officer's aspirin requirements far beyond those mentioned by the designer of airplane motors.

One example of an attempt by the railroads to utilize what may be termed an alloy steel has been that of intermediate manganese. The results in service have been unfavorable despite the fact that the material has met all the specified requirements of the best standard practice. And intermediate manganese in spite of the value of the properties which it should possess, has been relegated to the status of an undesired rail steel. Basic research would restore it to economic use and would further our knowledge concerning the effect of variable temperatures on service stresses which render materials brittle and sensitive to shock.

Some roads use six-hole joint bars while others with the same traffic characteristics use four-hole bars. There are no complete basic studies regarding the size of bolts nor the size and spacing of bolt holes. With an annual bill for rail and fastenings amounting to over one and one-quarter hundred millions of dollars, a very small change in metallurgy or design could effect tremendous savings for the railroads.

## Is There One Best Car Design?

In the field of freight and passenger cars, the railroad executive today has very little to guide him. For a passenger car built by one manufacturer will contain only the alloys specified by that company, while another builder will require that he utilize entirely different alloys if his cars are purchased. But what scientific knowledge can the busy executive obtain to help make his choice?

We have as yet taken no adequate measure of the cost to haul a pound of tare weight in the determination of what we can afford to pay for lighter weight cars. Nor does the A. A. R. have any standard designs for light weight freight cars other than the conventional riveted car designed many years prior to the war. The design of a thoroughly modern car will require at least a year and a half for the best minds in the industry to achieve. For not only must service stresses and conditions be thoroughly analyzed but the new alloys must be adequately investigated, shippers needs carefully evaluated, and a new braking system developed if the cost of the weight reduction is to justify the increased cost of the new car. In such a study, a partial list of subjects to be considered would include:

1—Use of stabilizers to take up vertical and horizontal shock.

2—Suspension and low center of gravity design to permit higher speeds.

3—Truck design and metallurgy.

4—New types of flexible bearings.

5—Prevention of thermal checking of wheels.

* The visibility of the colloidal material in polarized light discloses the currents of the liquid moving through the model of a longitudinal section of the firebox.—Editor

6—Methods for the detection and prevention of hotboxes.

7—Possible development of steels with permanent finishes to avoid painting requirements.

8—Development of special coated light-weight materials made to resist abrasion from roadbed materials.

9—Welding techniques to prevent the wrinkling of all-welded light sheets.

10—Method which will permit the use of two dissimilar metals without the corrosive effects of electrolytic action.

## Starting from Scratch

Basic studies of motive power offer a fascinating vista. In the past decade we have seen the advent of a successful and growing use of Diesel locomotives in passenger, freight, and switching service. The steam turbine locomotive is now in its swaddling clothes and the gas turbine locomotive is beginning to register its first vigorous kicks in the designer's womb. Yet we have never had a complete and coordinated study of the underlying factors entering into the generation and utilization of power in a steam locomotive. Applied research has been extensively explored and certain basic factors have been given considerable study. This has resulted in many improvements in design and operation.

Yet the steam locomotive still remains a comparatively inefficient power plant. A primary study should commence with the thorough investigation of the conditioning of water. This would permit its use under the most severe service conditions and at any pressure specified. For in spite of the millions of dollars spent annually for palliatives, we have not yet escaped foaming, scaling at high temperatures and pressures, corrosion, pitting, and carryover. With full control of water conditioning, the first step towards higher pressures and increased efficiencies will have been taken. Coincidentally with this study should come a basic study of fuel. This would lead to conditioning of coal which might secure smoke elimination, complete combustion, absence of abrasion now typified by cinder cutting, and higher firebox temperatures with the same B.t.u. consumption.

## Annual Saving into Millions

A very small increase in combustion efficiency would lead to annual savings of millions of dollars for fuel. Decreased maintenance of way costs would result. For less cinder accumulation along the right-of-way would reduce the fouling of ballast and impairment of signal circuits. The greater part of the fire hazard due to stack cinders would be eliminated. Stops at coaling stations could be decreased and many other attendant economies effected. A progressive step in this direction has recently been taken in a cooperative study sponsored by a group of coal producers and a number of interested railroads.

To take full advantage of the results to be obtained through increased knowledge regarding fuel and water, basic metallurgical studies must be made. At present, materials used in the construction of the boiler and firebox are purchased under specifications which do not recognize the effect of temperature, cyclic thermal and operating stresses, and other conditions found in actual service. As a matter of fact, present specifications for firebox and boiler steel are based upon room temperatures. With the sharp drop in yield point and tensile strength at high temperatures, these specifications are practically valueless. Studies could lead to alloys eliminating fatigue, aging, and embrittlement. This would permit a substantial weight reduction, allow higher pressures and temperatures, and help in withstanding the severe service conditions imposed by the reciprocating engine.

With complete control of water, coal, and metallurgy, the designer could then begin his labors with a completely new viewpoint. And utilizing the new techniques such as fluid flow, photoelasticity, and other valuable aids—develop a locomotive with greatly increased efficiency.

Full benefits can only be derived through completely coordinated studies of all the functions enumerated. At the same time, many of the techniques developed and metallurgical studies made would be of great benefit to those working on rail and car problems.

## Central Clearing House

To develop fully the possibilities inherent in the railroad—to keep it progressive and modern—many of you would like authentic data from a group having high technical attainment and a basic knowledge of actual railway service conditions. Such a group could be of valuable assistance in charting decisions regarding your future activities. These considerations lead to the conclusion that the railroads have urgent need of a group technically qualified and properly equipped to correlate fundamental research activities so vital to the continued progress of the entire industry. This would give a competent central clearing house to the many agencies now engaged in railroad research.

In such company, the busy railroad officer, the car builder, and Doctor of Science could meet on common ground —all blazing a trail for tomorrow's railroads.

## Will *Any* Limits on Truck Size Satisfy Truck Operators?

The problem of size and weight limitations for highway vehicles is involved. Highway administrators are faced on one hand by the demands of the motor transport interest for more liberal regulations, and on the other by the duty imposed upon them to expend public funds allocated for highway construction wisely and in the best public interest, and to protect by adequate traffic regulation life and public property. Their problem, therefore, is one of establishing size and weight regulations that will best serve the interests of the public; that is, to place regulation on a basis, consistent with public safety, which will strike a proper economic balance between pavement life and the benefits to be derived from advancements in motor transport.

It would simplify the problem greatly if the motor transport interests would stabilize their demands at some reasonable level and be content to operate under such limits for a definite period of years. This is hardly to be expected, however, since their demands stem from a desire to carry heavier loads, limited only by the ability of the automotive industry to develop increasingly larger vehicles with greater load capacities. Developments in vehicle design probably will always exceed pavement capacities, because of the great difference between the respective service lives of vehicles and pavements.

The present situation illustrates that the demands of the motor-transport interests cannot be expected to become stable. A short time ago these interests were vigorously promoting the universal adoption by the states of a set of limitations very similar to those now proposed by the National Interregional Highway Committee, particularly the 18,000-lb. axle load. Now, when it appears probable that these limits will be adopted by most states, but before such action has been taken, one of their groups has already set a higher goal for its promotional activities.

In Illinois, and in other states, there is a large mileage of pavements which do not have the capacity for carrying loads greater than the present legal limits. If these pavements are required to carry a considerable volume of vehicles heavier than now permitted by statute, their service life will be seriously affected.

It is frequently suggested that more liberal regulations be established for interstate traffic and at the same time maintain more conservative limitations for intrastate traffic. It is generally conceded that it is not practical to have two sets of regulations in a state, the higher one for designated truck lines and the other for the remainder of the highway system. The enforcement of such a plan could not be accomplished by a police force of any reasonable size. Since regulation is effective only to the extent of the enforcement of the laws, it is obvious that size and weight limitations on all highways would have to be at the higher level.

*—From an Article in Engineering News-Record by Illinois' Chief Highway Engineer W. W. Polk.*

## 1945 Work Programs

(*Continued from page 548*)

somewhat larger basis than in 1944. Also, because of changed drainage requirements, a considerable number of wooden trestles will be retired and filled, and in most cases, pipes or box culverts will be substituted. Several roads plan to replace existing wooden trestles with concrete trestles, while others plan to substitute creosoted ballast-deck trestles for untreated open-deck structures.

Building maintenance will remain on about the same level as last year. The principal activity along this line, outside of routine repairs, will be in connection with alterations and enlargements of enginehouses, shops, freight-handling and other facilities that are now inadequate for the demands that are being made upon them. Restrictions on lumber and other building materials, as well as the scarcity of labor, are still combining to hold building maintenance to bare necessities. These factors, together with a desire to apply such labor and materials as are available to projects that will tend to speed traffic, are also limiting the amount of station modernization that would otherwise be planned for the year. A number of roads indicated that they would like to do a large amount of this work, but fear that most of it must be deferred till the post-war period.

### Deferred Maintenance

Although the railways had succeeded in wiping out by the end of 1940 a considerable part of the deferred maintenance that had accumulated during the depression years, a substantial amount still remained with respect to rail, ballast, bridges, buildings and some other items. On the basis of gross ton-miles, rail renewals during the depression years were decidedly subnormal, but owing to the relatively light traffic during those years the effect of this deficiency was not so pronounced as it would have been under normal traffic. On the same basis, since 1940, the replacement of rail has been inadequate to offset the wear and tear of an almost incredible traffic moving at higher average speeds than in any previous period. Because of this continued deficiency in rail renewals, the amount of deferred maintenance in rail has increased rather than decreased during each of the last five years, and the same comment is applicable to ballast and bridges.

In general, little or no additional deferred maintenance has accumulated on buildings during the last four or five years, although many of them still suffer from under-maintenance and probably will continue to do so through the present year. On the other hand, the effect of obsolescence is constantly becoming more evident and there are more outmoded buildings on the railways today than at any previous time. It is quite probable that post-war demands will differ in many respects from those of the past, particularly so far as buildings serving the public directly are concerned, so that not only those buildings that are now obsolete but many that are more nearly up to date will require replacement or modernization to fit them for the requirements of the post-war period.

Incidental mention has been made of some of the items of work equipment that are included in the budgets for the year. As a further indication of the increased amount of work that the railways are planning to do in 1945, they have included 9,600 power machines and tools in their budgets, with an excellent prospect that purchases of this equipment will rise to 11,000 units, partly as a means of offsetting the deficiency in labor, which has become the most important problem facing maintenance officers.

### Effect of the War?

To what extent have conditions created by the war affected railway programs for construction and maintenance? Partial answers to this question have already been given in discussing details of these programs, but few officers have been able to make a sharp segregation of work that would have been done normally from that which has been demanded primarily by war traffic. In an effort on their part, however, to arrive at some line of demarcation for the improvements that are being made, estimates of the proportion of long-term improvements that should be allocated to war requirements ranged from 0 to 100 per cent, most of them being between 35 and 75 per cent. Likewise, similar estimates for maintenance ranged from 0 to 50 per cent, with most of them falling between 30 and 50 per cent.

However, it was stated quite definitely by many of the roads that practically all of the improvements planned should be made regardless of the war, because they are essential to good operation, even under normal traffic. In other words, the substantial increase in the volume of traffic has merely emphasized the need for them and advanced the time for undertaking them and, in some cases, increased the size of individual projects. Similarly, they said that there were no items in their maintenance budgets that would not have been necessary under normal traffic, and that the war traffic has only accelerated the rate of wear and thus increased the amount of work to be done, but not the kinds.

Practically every officer, in discussing his improvement program, stressed the fact that while there is essential need for the items included in his budget, there is also pressing need for many other types of improvements, many of which, however, must await the easing of military requirements. In the same vein, they said frankly that wear and tear on the track and other structures are running well ahead of repairs, and that every item of work included in their maintenance budgets is essential to keep these structures fit to handle the traffic, without hope of building any reserve into the property.

# COMMUNICATIONS . . .

## *Let's Be Realistic About Transcontinental Trains*

SANTA MONICA, CALIF.

TO THE EDITOR:

Not so many years ago the transcontinental journey from New York City to the Pacific Coast required nearly one hundred hours, and, irrelevant as it may seem, there was no airline competition. Today, that same trip is negotiated in considerably less time, but there is plenty of airline competition. Quite recently the newspapers blazed with the headline of a new coast to coast airliner record—*six hours, three minutes, and fifty seconds* from Seattle to New York City. That's not just news—it is a challenge to the railroads of America.

Before the war suddenly brought to a halt the plans of the railroads for modernizing their plants and equipment, much had been done to improve rail travel. However, in the light of projected plans of airline and bus companies, it would appear that from a standpoint of survival the railroads will have to do some mighty drastic overhauling not only of their equipment but their thinking, as well. For example, the average transcontinental passenger is primarily interested in boarding a train, airplane, or bus, and, with a minimum of inconvenience, and a maximum of comfort, traversing the continent in the shortest possible time—*safely*. This passenger, regardless of sex, is not particularly interested in viewing Chicago, St. Louis, Memphis, or New Orleans from a taxicab or bus while transferring from one bewildering station to another or merely endeavoring to pass the time between train connections. And a useless waste of time it is for this group of passengers. Why in the name of streamlined railroading do we continue such foolishness? Why not provide coast to coast service without the necessity of changing trains? This can be done effectively through our four major East to West gateways, namely, Chicago, St. Louis, Memphis and New Orleans.

Selling transportation is fundamentally no different than selling any staple commodity. The demand is obvious. Why do we continue to ignore it?

### A Puff on Our Dream Pipe

Just by way of example, and many could be cited, suppose we puff on our dream pipe and use our imagination. That's all we need. The tracks are there, the equipment will be available, and the customers number in the thousands. They are ready, anxious and determined that some day they

will travel coast to coast without being *forced* to change trains. For this typical train, "The Rainbow Limited", suppose we choose Los Angeles as a starting point and travel eastbound over the Santa Fe system to Kansas City were we branch off onto the Missouri Pacific Lines to St. Louis, and from St. Louis through Cincinnati and Washington, D. C., to New York over the Baltimore & Ohio rails. This trip could be scheduled for 55 hours elapsed time and still be operated at a safe and comfortable speed.

**No Glorified Milk Trains**

Possibly you would rather travel over the Southern Pacific-Rock Island combination between Los Angeles, Tucumcari, Kansas City and St. Louis. Then from St. Louis to New York over the Pennsylvania. Perhaps you have another combination of routes in mind; that's fine, but one thing is certain if you are of the same mind as the average transcontinental traveler, you would like to make your trip straight through without changes or delay and on a modern streamlined "Limited". Trains in this service should carry their complete consist from coast to coast and not be glorified milk trains picking up and setting out cars at every major terminal and junction along the route, causing their through passengers the inconvenience and unnecessary annoyance of being awakened at all hours of the night by the thud and jolting of coupling cars set to the accompaniment of mournful and more often shrieking whistles and clanging bells of yard goats.

The consist of our "Rainbow Limited" should be second to none in equipment, styling and service. This typical super-transcontinental streamliner should be a veritable hotel on wheels and should leave nothing to be desired in appointments and comfort. If such first class coast to coast trains are not inaugurated at the earliest possible moment in the post-war period it appears quite likely that the railroads will lose a considerable portion of this transcontinental business to the airlines.

**Not Bridled with Traditions**

I realize that there are many people, like myself, who might be classed as just plain railroad fans. We plan a transcontinental trip with as many side trips and train changes as possible. Our eyes pop at the sight of a hogger notching his throttle on the main. We thrill to the stack blast of a tea-kettle walking the dog on a short line. Ours is the delight supreme as we detrain amid the rumble of baggage carts jockeying into positions along the train, the sound of ringing bells, panting engines, escaping steam and the rhythmic beat of compressors, and enter the maelstrom of noise and confusion typical of any major railroad terminal throughout our land. We are inwardly thrilled and overjoyed at the sound of the train announcer as he mournfully chants the important stops on the route of some main line varnish about to depart—but we are railroaders. We thrive on the acrid smell of smoke and the hiss of steam.

Unfortunately, yes, even regretfully, for those of us who look upon the railroads as friendly, living, breathing steel monsters, there are countless thousands of travelers who detest the thought of a train ride, for to them it represents coal dust and cinders, the jolting and lurching of coupling cars, the monotonous clicking of wheels on the rails, the arm breaking task of opening and re-opening door after door on their thrice daily trip to the diner. Their complaints are too numerous for detailed accounting, but the point I am endeavoring to bring out is this: Regardless of the justification for their dissatisfaction, they are still paying the bill, and if they can't get the type of service they desire from the railroads, they will use whatever other means of transportation is available. This we must strive to prevent with tremendous vigor and imagination, because once any appreciable percentage of passenger business is lost to the advantage of the airlines or bus lines, the railroads will face a heart-breaking task in attempting to recoup such losses.

For this and countless other problems I say with all sincerity—Let's be realistic. Let's not be bridled with the blinding phobia of tradition. Let's not allow our thinking to become regimented for that course leads only to stagnation and decay.

There are some, I am sure, who will say this is all very interesting but haven't we already entered a new era of railroading with our Diesel engines, streamlined trains and faster schedules? To be sure we have, but our progress has only scratched the surface, and this after more than ten years.

E. F. HUNTER, JR.

## *What Is a Curtis Turbine?*

NEW YORK

TO THE EDITOR:

On page 338 of the *Railway Age* of February 7, 1945, in an article on the steam turbine locomotive built for the Pennsylvania Railroad, you state that "the forward turbine is of the impulse type and consists of a Curtis stage followed by five full admission Rateau stages."

This mode of describing the turbine is sometimes used, but it is not correct. The fact is that my type of turbine, used by the Westinghouse in the above locomotive, is exactly like the one built by the General Electric Company from the beginning, involving the use of a two-row stage with a series of single-row stages. It was described and shown in my patent 566,969 (September 1, 1896) and is covered by the claims therein. This patent was broadly supported by the Circuit Court of Appeals in 1914 and in Judge Buffington's opinion the conclusion was reached that the work done by Rateau was not of practical value, cut no figure in the art, and was not an anticipation of the Curtis patent.

The early turbines designed by William L. R. Emmet and myself involved this combination and the marine turbines designed and built by me at the same time also involved the combination, as have all these built since that time by the General Electric Company and by our licensees both in the land and marine fields.

CHAS. G. CURTIS,
President, International Curtis Marine Turbine Company.

## NEW BOOKS . . .

A. S. T. M. Standards on Petroleum Products and Lubricants, *published by the American Society for Testing Materials, 260 S. Broad St., Philadelphia 2, Pa. 514 pages. 6 in. by 9 in. Bound in paper. Illustrated. Price $2.75, with reduced prices on orders in quantity.*

This volume is a compilation of all A. S. T. M. specifications, methods of tests, and definitions pertaining to petroleum products, including some 80 standards. The book also contains certain proposed test methods; proposed conversion tables for petroleum oils, from metric tons to long tons and short tons; a discussion on oil measurement; and proposed methods of analyzing petroleum sulfonates.

Among the test methods included are authoritative procedures for determining the properties of a wide range of petroleum products, such as acid heat of gasoline, aniline point, burning quality, carbon residue, color, distillation, specific gravity, knock characteristics, melting point, etc. Specifications are also included on fuel oils, gasolines, Stoddard solvent, asphalt, etc.

*Proceedings of the American Wood-Preservers' Association for 1944. 492 pages, 6 in. by 9 in. Illustrated. Bound in cloth. Published by the Association, 1427 Eye Street, N. W., Washington 5, D. C. Price $6.*

Thirty-one papers and committee reports, together with the discussions that followed their presentation, are included in this volume of the proceedings of the fortieth annual meeting of the association, which was held in Chicago, on April 26, 1944. While some of the reports and papers deal with technical matters that relate particularly to the wood-preserving industry, others are of direct interest to railway men. Among the latter are reports on service records of ties, poles, posts and marine piles; specifications for the pressure treatment of ties, lumber, poles, posts and piles of various species of woods; an international termite exposure test; treated wood for car lumber; and fireproofing.

Among the papers of special interest to railway men are Information on Pentachlorophenol as a Wood-Preserving Chemical, by Ira Hatfield, Monsanto Chemical Company; Studies of the Biological Environment in Treated Wood in Relation to Service Life, by Henry Schmitz, Herman von Schrenk and A. L. Kammerer; and Recent Treatment Practices on the Chesapeake & Ohio, by H. M. Church, general supervisor of bridges and buildings of that road. In addition to the voluminous report on fireproofing practices, six papers touch on various phases of the treatment of wood to render it fire resistant.

In addition to the foregoing, the volume also includes a detailed report of the business sessions of the fortieth annual meeting; a list of all the wood-preserving plants in the United States, Canada and Mexico; and the thirty-fifth consecutive annual report, for 1943, of the quantities of wood treated and preservatives used in the United States, prepared by R. K. Helphenstine, Jr., of the Forest Service, United States Department of Agriculture.

# Railroads-in-War News

## Miracles Have Limits Says Colonel Johnson

### Facilities will be incapable of equaling last year's ton-miles in 1945

The freight transportation situation is in the most critical condition since the beginning of the war, and no material improvement is in prospect, according to statements last week by Col. J. Monroe Johnson, director of the Office of Defense Transportation. This is the "inevitable result," he said, of continued hauling of the heaviest load in history with insufficient replacement equipment, with manpower shortages, and with traffic congestion caused by storms and further complicated by floods.

**Can the Load Be Moved?**—Commercial freight traffic this year is expected to total around one trillion ton-miles for the third successive year, Colonel Johnson continued, and any slight reduction in the over-all load will be "more than offset" by the greater difficulty in handling freight in huge volume for shipment abroad. As a result, the country's transportation system in 1945 will, in his opinion, be faced with the "severest task in history." "I am convinced," he added, "that unless there is early improvement in furnishing manpower and materials, our transportation system will be incapable of transporting the ton-miles of freight in 1945 that it transported in 1944 and 1943."

"American transportation has been called the 'miracle job' of this war. But even miracles have limits, and it appears that we have reached those limits," the O. D. T. director asserted.

All forms of transport need additional equipment and repair parts, he pointed out, yet new material and equipment programs have been slashed heavily by the War Production Board. Meanwhile, the man-power shortage already is slowing down freight movement.

The grain situation was cited by Colonel Johnson as "particularly alarming," with "great quantities" of wheat still to be moved, a "large amount" of high-moisture-content corn that must be handled soon to avoid severe damage, and new and "prospectively heavy" crops coming on. Furthermore, he said, the coal car shortage is "the worst in many years," and "serious" refrigerator car shortages have existed for weeks. Such difficulties are not confined to any one section of the country or to any one commodity, he added.

**Improvement Not Possible**—"There is little likelihood that the situation will materially improve during the entire year," Colonel Johnson predicted. "There is no way at this stage of the war of getting more materials or man-power to increase transportation capacity, or even to maintain present efficiency. We must make what we have do the job."

Recognizing that there has been "some criticism of lack of action in solving the situation," the O. D. T. director said, "this criticism would be justified if the situation was one that could be solved by issuing directives and orders. It is not. Even a partial solution depends not on issuing orders but on the physical job of keeping freight moving."

"Large deficits" now exist in the production of new material and equipment for the agencies of transportation, he pointed out, but he went on to assert that the present difficult situation in both equipment and man-power can be eased only by "depriving the armed services of materials and men they need." From 1941 to 1944, he said, the new material and equipment obtained by the railroads fell short of basic requirements by 185,000 freight cars, 2,146 locomotives, 2,619 passenger train cars, and 762,000 net tons of rail. In addition, the requests for carbon steel allocations for the transportation industry for the first half of 1945 have been cut about 30 per cent.

**Not Replacing Worn-out Cars**—The number of box cars built last year, 17,600, according to Colonel Johnson, was just about half the number that ordinarily would be required merely to replace worn-out equipment, without regard to the extra replacements required by the heavy service to which the cars now are being subjected.

With the cooperation of the W. P. B., the National Association of Shippers Advisory Boards, and the National Industrial Traffic League, the O. D. T. has undertaken a new effort to enlist the help of shippers in achieving greater utilization of freight cars. As noted elsewhere in this issue, the drastic demurrage charges put into effect last fall on box cars held for long periods have been reinstated by the Interstate Commerce Commission, effective April 1.

"Let no one underestimate my appreciation of the voluntary efforts made by shippers throughout the war," Colonel Johnson said. "A great deal of recent slowing down in car movement during the bad winter weather was unquestionably due to the disabilities of the railroads. The effective date of the I. C. C. order increasing demurrage charges was purposely delayed until the railroads should have largely recovered from the effects of the bad weather and other handicaps. The increased demurrage charges were helpful in adding to the available supply of box cars last fall, and their reestablishment should be helpful now."

**Railroads a War Tool**—In explanation of the shippers' opportunity to contribute

(*Continued on page 557*)

## Car-Supply Situation Appraised by Kendall

### Car Service Division chairman reports on conditions and prospects

The "extremely critical" box-car-supply situation prevailing in Western territory since early in December may be expected to show "further improvement," but it is "somewhat questionable that the supply will be adequate to meet current requirements fully through the fall months," according to a report on the "National Transportation Situation" which Chairman W. C. Kendall of the Car Service Division sent this week to general chairmen and National Association officers of the Shippers' Advisory Boards.

Mr. Kendall's prediction that the box car supply may prove inadequate for the fall traffic peak is based on "the present prospects for bumper crops of agricultural commodities, a further increase in the movement of grains across the lakes which requires rail transportation on both ends, and continued heavy requirements by the military, including the movement of substantial quantities of foodstuffs to ports for the liberated areas." The box-car situation was the darkest picture painted by Mr. Kendall's report, although he found no easy supply conditions with respect to any type of car, save stock cars—the supply of these having been "fully adequate in all parts of the country."

**Moving Empties to West**—The "extremely critical" box-car situation in Western territory was attributed by the C. S. D. chairman to the decrease in return movement from the East caused by severe storms. He pointed out that every effort has been made to alleviate conditions, mentioning C. S. D. quota orders which have required eastern and southeastern roads to deliver to their western connections a specified number of empty box cars per day. These quota orders resulted in the delivery of 22,153 empty box cars through March 15, and they will be continued in effect; for there remains in Western territory "a tremendous volume of grain on farms and in country elevators which must be marketed in advance of the new grain harvest starting in early June."

Since March 3 ventilated box cars have not been available for general service. They were withdrawn from such service on that date for use in handling "the heavy volume of citrus fruits from Florida." Likewise stock cars diverted to loading of commodities normally moving in box cars must now be assigned to the spring livestock movement in Western territory,

and to move any surplus of livestock in the East and Southeast to the Western states.

**The Open-Top Situation**—With respect to coal cars, Mr. Kendall warned that "there will at no time be any large surplus." He noted, however, that the railroads now have behind them the obstacles of storms, floods, and sub-zero temperatures which caused serious dislocations from mid-December until late in February. The same conditions prevailed with gondola cars, causing deficiencies in the Pittsburgh, Youngstown, Cleveland, and Buffalo steel producing districts. "This situation," Mr. Kendall said, "is rapidly improving. The supply will continue thin with the possibility of spotty deficiencies of short duration, but as a whole the requirements should be met."

The supply of flat cars will also be "thin in all territories," and "there will doubtless continue to be some stringencies." The recent deficiencies in the lower peninsula of Michigan have been overcome, leaving the Illinois-Iowa-Wisconsin area as the most serious one for flat cars. As Mr. Kendall points out, the demand for this type of equipment continues "extremely heavy for the movement of military impedimenta, finished war materiel, and agricultural implements." Meanwhile all shipments requiring heavy capacity flats have been protected, due to the control plan operated by C. S. D. with the cooperation of owners of the less than 500 cars of this type. With respect to covered hoppers, there is no surplus, and, as Mr. Kendall put it, "present indications are that as the construction season gets under way, the demands for this type of equipment may well increase and the available supply will be rather tight."

**Oil Movement Still Heavy**—Of the 150,000 tank cars in service, nearly 115,000 or 77 per cent are allocated to the petroleum movement, Mr. Kendall said. Oil movements to the eastern seaboard are now averaging 540,000 barrels, or nearly 2,500 cars, daily, as against the peak movement of approximately 5,000 cars per day during June and July, 1943. Cars removed from the Eastern service have been transferred to other petroleum loading, so there has been little change in the number of tank cars in petroleum service.

The report continued to tell about the present organization of the petroleum movement, involving a daily average of 82 symbol trains from producing areas. Sixty-five of these trains go to the eastern-seaboard area, 12 to the Pacific coast, and five are confined to the Middle West. Operating on Office of Defense Transportation schedules, both as to loaded and empty movement, these trains "are averaging on time or better performance." Some movements to the east coast average 2,000 miles, and cars in these trains "are now being turned around in 20 days." Likewise cars making 1,500-mile runs to west-coast points "are back at loading points within 15 days." Tank cars in oil symbol trains "are averaging from 250 to 300 miles per day." Other commodities moving in tank cars are also "receiving expeditious service."

**Some L. C. L. Congestion Remains**—Mr. Kendall next mentioned briefly the C. S. D. embargo machinery which "continues to be used daily," embargoes generally being placed against specific consignees. The report referred also to the general carload embargoes which were in effect briefly during the period of the recent storms in the East; and to the more recent embargo against l.c.l. and forwarder traffic. In some areas, the latter "fully served its purpose and enabled railroad freight houses to get their operations on a current basis. In other areas, where the backlog was greater, and labor problems more acute, the improvement resulting from the embargo was not sufficient to wipe out the holdings of delayed cars of l.c.l. freight." Thus, as Mr. Kendall put it, "further consideration must be given to the question as to how this situation can be relieved and freight house operations restored to a normal basis everywhere."

With most of the divisional movements completed, military freight movements will now deal principally with new units from manufacturer to depots and with movements from training areas to salvage depots for rehabilitation, the report said in discussing the work of C. S. D.'s Military Transportation Section. "In box car equipment, which is the general all around purpose car," it added, "direct military requirements are not unduly heavy. At the present time these requirements are larger than usual for ammunition which is being expended in the battle area and as our armies progress into enemy territory the 'wake-of-battle' requirements will increase as territory is gained."

**Changing Troop-Movement Requirements**—The discussion of Passenger Car Section activities pointed up the unprecented volume of passenger business now being handled, adding that service on such a basis has been made possible only "by the greatest practical measure of cooperation between railroads in arranging for the use of each other's equipment." With respect to troop movements, "new problems are constantly arising with the changing military program," and it is expected that there will be increasing demands with the coming of VE-Day.

Weekly freight car detention reports showed that when checks were made during February 57,916 cars out of a total of 361,503 cars on hand were being detained over the free time of 48 hours. This is a 16.02 per cent detention, the lowest since the car efficiency plan was inaugurated in March, 1942; it compares with January's 19 per cent, and February, 1944's 18.2 per cent. As of February 28, the report continued, there were 601 regular car efficiency committees organized throughout the country in 856 communities, this number not including the special car efficiency individuals in New England.

## Floods Slow Oil Deliveries

As a result of floods that affected rail movements in the Ohio river area, tank car shipments of oil to the Atlantic seaboard for the week ended March 10 dropped to a daily average of 491,198 barrels, according to Deputy Petroleum Administrator Davies. Empty tank cars returning to the mid-western and Gulf coast refining centers were held up as much as two days by the floods, he said, and operations were "tied up or seriously impaired" at almost all barge-rail terminals between Pittsburgh, Pa., and Cairo, Ill.

"The railroads stepped into the breach again by carrying out an embargo on l. c. l. freight so that other shipments could be moved through the flooded railroad yards," Mr. Davies observed. "Now that the waters have receded, it is hoped that tank car traffic will pick up momentum and get back on schedule." He predicted, however, that rail shipments to the East coast for the week ended March 17 would prove to be about as low as in the preceding week.

Solid Fuels Administrator Ickes stated on March 17 that soft coal mining operations had been handicapped in several districts in the week ended March 10 by "shortages of railroad cars and flood conditions. Production totals for the week were 255,000 tons below the previous week's figure, and 1,275,000 tons, or about 10 per cent, under the corresponding 1944 week. Output of bituminous coal so far in 1945 totals about 9 per cent under that for the same period last year, he reported.

## O. D. T. Appointment

P. N. Simmons, regional director of the Office of Defense Transportation Highway Transport Department, New York, will succeed Thomas H. Nicholl as director of the regional operations division of the department in Washington, D. C., on April 1, the O. D. T. has announced. Alvin S. McEvoy, assistant director of the regional operations division, will succeed Mr. Simmons.

## Army Transport Association to Meet in New York, April 4

Maj. Gen. C. P. Gross, chief of transportation, will be principal speaker at the first get-together luncheon of civilian and military members of the New York chapter of the Army Transportation Association, at 12:15 p. m., April 4, Hotel Pennsylvania, New York. Other high-ranking officers, also members of the new group, will attend. Reservations for the luncheon will close March 31, and members wishing to attend are asked to contact Capt. J. Fortune or Maj. L. Wadsworth at Hanover 2-4500, New York, or by mailing their acceptance to Army Transportation Association, 25 Broad street, New York 4.

## Revise Draft Deferments of Rail Employees Under 30

In the absence of official statements supplementing a brief Selective Service announcement March 17 that certain "certifying agencies," including the Office of Defense Transportation, had been authorized to "exceed the previous limit of 30 per cent for certification of requests listed with them" for draft deferment of registrants under 30 years of age employed in critical industries, it was understood that railroads complying with government provisions for the further deferment of such employees might be permitted to retain as many as 85 per cent of them.

In view of estimates that some 48,000 or 50,000 essential railroad employees fall

within the under-30 category, it appeared that the roads might be able to retain about 40,000 of them, if the local draft boards follow the recommendations emanating from Washington. Local boards, however, have authority to continue to draft men whose deferment has thus been recommended, or they may defer men in the absence of such recommendation.

In addition to this provision for the railroads, the O. D. T. has been permitted to certify requests for deferments for more than 30 per cent of the essential under-30 employees of transportation agencies on the inland waterways and Great Lakes, and of the airlines. Similar authorizations have been given appropriate "certifying agencies" for coal miners, rubber mill workers, steel and foundry workers, and non-ferrous metal miners, but it is understood that there is some variation between these industries and branches of industry as to the precise percentage of deferable employees under 30.

## Shop Battalion Improvises Needed Tank Cars

From the 757th Railway Shop Battalion, in France, comes word that it has completed 60 of a proposed 212 so-called "war flats," (actually flat cars provided with tanks), and that the remaining 152 under the program set down by the Transportation Corps to meet the increased demands for gasoline will be turned out at the rate of 10 cars a day.

Each car carries five tanks, holding 900 gal. each. The tanks are of metal, 7 ft. high and 5 ft. in diameter and, according to Headquarters, "have the appearance of a tray with five gigantic jars on wheels." The tanks are secured in place by four 1-in. stay rods, and a cap at the top of each tank is sealed with rubber made from salvaged hose.

Before their conversion, the tanks were used to provide fresh water for troops in classification yards.

## Brig. Gen. Stewart Now Deputy Chief of Transport, E. T. O.

With the consolidation, on February 12, of Headquarters, Southern Line of Communications, with Headquarters, Communications Zone, Brig. Gen. George C. Stewart, of Montgomery, Ala., holder of the Legion of Merit, the Distinguished Service Medal and the Bronze Star, was appointed deputy chief of transportation to Maj. Gen. Frank S. Ross, chief of transportation, Southern Line of Communications. He now shares the job of deputy transportation chief with Col. David W. Traub, who has held the position since Communication Zone headquarters were established on the Continent. According to Headquarters, European Theater of Operations, General Stewart now directs the activities of the movements in the M. R. S., Inland Waterways and Motor Transport divisions. Colonel Traub now supervises the Control and Planning, Administration, Marine Operations and Supply divisions.

General Stewart went to Great Britain as a colonel in May, 1942, as chief of the Planning division, on the staff of Lt. Gen. J. C. H. Lee, commanding general of Services of Supply. In November, 1942, he became chief of transportation on the activation of the Mediterranean Base Section. In February, 1943, he was made chief of transportation of Allied Force headquarters, in Algiers. In November, 1944, he was appointed chief of transportation of the Southern Line of Communications. Promoted to brigadier general in October, 1943, General Stewart has besides his American citations been honored by the British, having received the decoration of Commander of the Most Excellent Order of the British Empire, in October of last year.

## Clyde Reed Calls Car Situation Worst in 25 Years

Grain and livestock producing areas of the country are now faced with their "most desperate" freight-car-supply situation of the past 25 years, according to Senator Reed, Republican of Kansas. Asserting that "there is no overestimating the difficulty caused to railroad transportation by the recent storms in the Northeast," Senator Reed told the Senate last week that "today there is probably the most serious dislocation in the supply of box cars we have ever had."

The senator made his remarks while participating in a discussion of domestic supplies of meat and foodstuffs. "Twenty-five hundred grain elevators in the corn and wheat belts," he said, "have been closed and are unable to do business because of a shortage of freight cars. In addition there is a movement to take in the next four months the equivalent of 100,000 box cars for the movement of grain out of the United States for use in occupied countries. The agencies sponsoring that program gave no indication of concern whatever for the domestic situation and the transportation requirements of our own people, including our own grain producers and livestock producers."

Because of this Senator Reed fully approves the recent action of Director Byrnes of the Office of War Mobilization and Reconversion, setting up the Inter-Agency Committee on Foreign Shipments, which will consider the transportation situation as well as supplies of commodities available for export. Meanwhile, Senator Reed gave the railroads credit for doing their best in a difficult situation.

"In taking into consideration the limited facilities at their disposal, and the tremendous demand being made on their equipment," he said, "I believe that the railroads are doing all they can do. I believe there is hope for an improvement in the present situation."

## New York Central II Lost on 103rd Combat Mission

The B-26 Marauder bomber, New York Central II, which N. Y. C. employees had presented to the Army Air Forces on September 12, 1943, was hit by anti-aircraft fire and exploded over Germany on New Year's Day, the railroad has been notified. As recently as February 27, the eight crew members still were reported missing, although four to six parachutes had been observed leaving the plane.

The bomber, making its 103rd combat mission when lost, had 410 operational combat-hours to its credit, and had dropped 322,000 lb. of bombs over Italy, France and Germany. A predecessor bomber, New York Central I, was shot down in North Africa, February 24, 1943, after 13 combat flights.

## Midwest Roads to Get Less Coal from East Next Year

Midwestern bituminous coal mines are being called upon by the Solid Fuels Administration to provide more than 2,000,000 additional tons of coal for locomotive fuel as part of the 1945-1946 program to get maximum use from anticipated limited supplies, according to Deputy Solid Fuels Administrator Charles J. Potter, who said this tonnage will replace a similar amount of Appalachian coal formerly used by midwestern roads, thus shortening hauls and freeing fuel for consumers entirely dependent on eastern coals.

The 15 railroads that will use the extra midwestern coal will reduce their consumption of eastern coal moved via Great Lakes vessels by about 975,000 tons, and of Appalachian coal shipped all-rail approximately 1,185,750 tons. They will take 4,354,000 tons of eastern-mined coal via lake vessels and will haul by rail from the East some 15,423,906 tons for their own use, as compared with 16,609,656 tons moved all-rail in the 1944-1945 season.

Simultaneously with this announcement, Mr. Potter said that producers of bituminous coal will be permitted, on and after March 21, to ship soft coal to Great Lakes loading ports for transshipment in cargo vessels prior to April 1, without having to obtain written permission. The order granting this permission revokes a direction issued Februry 26, which required producers to obtain such authority.

## Permit Policy on Political and Religious Meetings Stated

The War Committee on Conventions, of which Col. J. Monroe Johnson, director of the Office of Defense Transportation, is chairman, has issued statements explaining its policy with respect to political and religious conventions or meetings. The committee's basic "yardstick" of essentiality has been stated by the O. D. T. as "how the winning of the two wars we are now fighting will be impeded if the meeting in question were held to an attendance of 50 or canceled outright." Applications for permits to hold gatherings with more than 50 out-of-town people in attendance must be passed on by the committee, and in the absence of its favorable action such meetings would be regarded as not conforming to the "request" of War Mobilization Director Byrnes.

On March 19 the committee pointed out that no permit is required for the holding of any meeting for religious worship or for ecclesiastical ceremony. It will act on applications for permits for other types of church meetings to be attended by more than 50 persons from outside the normal trading area of the community where it is held in accordance with the following principles:

If an application is filed for permission to hold a church legislative meeting, the

policy of the committee is to grant a permit with the understanding that attendance must be held to the minimum necessary for the group to function. A "church legislative meeting" is defined as "one called to transact business essential to the continuance or survival of the church organization." Such business would be of the following nature: Fiscal operation and control of church property; amendment of canonical laws; election of a bishop or other chief executive officer; selection or examination of candidates for ordination; assignment of pastors; and allocation of funds. Meetings of denominations that have no central governing body are not eligible as church legislative meetings, according to this statement of policy, and concurrent meetings of auxiliary groups (women's or youth's groups, ministers' conferences, or missionary societies) require separate permits.

Special courses of instruction for ministers or laymen require a permit unless they are part of the regular curriculum of a school. Church camps and summer assemblies following "the normal vacation pattern" do not require a permit, but any convention or meeting held at a camp or assembly ground does require one.

Previously, the committee had set forth its policy with respect to political meetings. In the case of national, state, county or local nominating conventions with non-local attendance exceeding 50, the committee will approve applications for permits "if attendance is limited strictly to that required by statute or by the minimum number necessary to conduct the business of the convention under war-time conditions." Committee meetings for the election of party officers "or of a budgetary nature" will be treated in accordance with the individual circumstances, the committee said. Dinners, banquets, and like party meetings require application for a permit, and the committee is "unlikely to give its approval."

## Super-Demurrage Reinstated—Other Service Orders

On the recommendation of the Office of Defense Transportation, which was made "in order to speed up the movement of freight in the face of an inadequate box car supply," the Interstate Commerce Commission has issued Service Order No. 242-B, effective April 1 to October 1, unless otherwise ordered, again putting a sliding scale of demurrage charges on box cars into operation. Such charges were put in effect last fall, the order as then modified and amended being substantially like the one scheduled for application April 1.

The reinstated order provides that, after the expiration of tariff free time, demurrage charges on each closed box car held for loading or unloading shall be $2.20 per day for the first 2 days, $5.50 for the third day, $11.00 for the fourth day, and $16.50 per day for each succeeding day. When such cars are subject to an average arrangement, the $2.20 per day charges may be offset or reduced by accrued credits as provided by tariff, but the higher charges prevailing for longer delays may not be offset by credits earned on other cars. The order applies to type X and V cars, and also to type BX cars when the latter are used in freight service. The charges specified in the order are made applicable in lieu of regular tariff charges for storage of freight in box cars at or short of ports consigned or reconsigned for export, coastwise or intercoastal movement.

Service Orders Nos. 282 (restricting bunker and retop icing of refrigerator cars) and 292 (restricting partial unloading of Florida citrus fruit south of a designated line) have been set aside by Nos. 282-A and 292-A, effective, respectively, on March 17 and March 20. The prohibition on the movement of cars loaded with Irish potatoes, except on War Food Administration permit, has been lifted so far as the state of Colorado is concerned by Fifth Revised Service Order No. 259, but remains in effect through April 30, unless otherwise ordered, in other localities where it was previously applicable. This modification became effective March 21.

## Miracles Have Limits, Says Colonel Johnson

(*Continued from page 554*)

to more complete car utilization, Colonel Johnson pointed out that "on the battlefronts American airmen recognize the importance of enemy rail lines and equipment. They are 'high priority' targets. We on the home front must remember that full utilization of our transportation system will not only help maintain our civilian economy, but also will be a direct and tangible contribution to victory."

The O. D. T.'s car utilization program for shippers included these points:

1. Load all cars to capacity.
2. Consolidate shipments where practicable, as by accumulating a carload in the place of several l.c.l. shipments.
3. Be prepared to adjust loads to different sizes or types of equipment when equipment preferences cannot be met.
4. Order only the cars required for immediate loading.
5. Load cars so they can be unloaded from either side; stow and brace lading to avoid damage and the resulting necessity of replacements.
6. Load cars immediately after placement and release them promptly, with correct billing.
7. Unload cars immediately upon receipt, remove all dunnage and debris, and promptly release empties not to be reloaded.
8. Keep informed on railroad switching schedules and arrange unloading, loading and billing accordingly.
9. Utilize all forms of available transportation.
10. Use Sundays and holidays where practicable to make cars available for release or reloading.
11. Commercial consideration should not be permitted to interfere with efficient use of transportation.

## Railroading in Southern France Sometimes "Hair-Raising"

Army railroading in southern France "has not been without hair-raising moments," reports Headquarters, European Theater of Operations .

The "selfless courage" of one officer and four enlisted men attached to the Santa Fe-sponsored 713th railway operating battalion, which had moved to this sector after serving in North Africa, Sicily and Italy, won them the Soldier's Medal for heroic action during an explosion and fire aboard a 31-car ammunition train. Recipients were: 1st Lt. Robert H. Anderson, of Newton, Kans., 1st Sgt. Arthur F. Rowen, Needles, Calif., Pfc. Mark H. Campbell, Riverton, Ky., Sgt. William F. Mallett, Forest Hill, La., and Sgt. Rex H. Smith, of Douglas, Kans.

The citation noted that when the train caught fire, and the entire area was being showered with flying shrapnel and burning debris, these army railroaders volunteered to act as a switch engine crew, first cutting 16 cars loaded with high explosives, and pulling them to safety. They returned three times to the burning section to extricate several cars loaded with mail and supplies.

Another dramatic incident concerned a yardmaster, two privates and a German paratrooper. When reports came to Sgt. Walter E. Skolrood, yardmaster, that a sharp lookout should be kept for German paratroopers in the environs, he passed the word along to Pfcs. Clifton A. Robinson and Clarence A. Clatterbuck. Several days later Sgt. Skolrood noticed a man in a gray uniform slip between some cars. Shouting to Pvt. Robinson, who in turn notified Pvt. Clatterbuck they surrounded the area, and captured the Nazi paratrooper. In frisking their prisoner, they collected a tub-full of small arms, including a number of "potato-masher" grenades, which hung from his belt.

The 713th operating battalion has been an active unit of the Seventh Army in France, since August 30 of last year, and prior to its present assignment, these Santa Fe-sponsored railroaders, commanded by Lt. Col. Ernest E. Foulks, were the first operating outfit to land in the European war zone in Italy. That was in October, 1943. Nine months earlier, the 713th had landed at Casablanca.

Within 24 hours after the 713th had been landed on the French beaches, it had swung into operation, had located equipment and had started trains loaded with vital supplies moving toward the front. The principal problem which thus far has confronted the outfit has been the number of destroyed bridges on all lines. In the Rhone Valley, from Marseilles to Lyon, there were no connections between the right and left banks of the river. To the north, the situation was no better. With the aid of Army Engineers and civilian labor, repairs have been made to bridges at Arles, Livron and other points. Four squads of the bridge and building platoon restored the Perrigny yards and, in October, assisted by two squads of track platoon men, reconstructed two double-track railway bridges, one south and one north of Langres. The same bridge construction is progressing over all lines assigned to the battalion.

The car platoon of Company B, together with French shopmen, repaired 1168 passenger and freight cars in October, more than 100 war flats and 32 Italian refrigerator cars. In November, the same platoon supervised the repair of 1400 freight and passenger cars in the Marseilles shops, and in December turned out over 1500 cars. A number of hospital trains have been completed and put into service since the 713th has been in France.

## 3d Quarter Loading Forecasts Miss Results Only 0.2%

A study of the accuracy of carloadings estimates by the regional Shippers Advisory Boards for the third quarter of 1944, rerecently made public by the Car Service Division of the Association of American

Railroads, disclosed an over-all variation of only 0.2 per cent between the forecast total and actual results. The variations by individual boards were from an overestimate of 9.2 per cent to an underestimate of 14.2 per cent.

The aggregate result, showing a 0.2 per cent overestimate, compares with a 2 per cent underestimate for the second quarter and a 6.1 per cent underestimate for the first 1944 quarter. In the third quarter, Division Chairman Kendall pointed out, 12 boards reported variations in estimates, as compared to actual loadings, of less than 10 per cent.

**Comparison National Forecast with Actual Loadings—Third Quarter 1944**

| Board | Carloadings Third Quarter 1944 Estimated | Actual | Per cent of Accuracy Over Est'd | Under Est'd |
|---|---|---|---|---|
| Allegheny | 1,155,484 | 1,145,146 | 0.9 | .. |
| Atlantic States | 684,839 | 692,964 | .. | 1.2 |
| Central Western | 299,371 | 277,979 | 7.2 | .. |
| Great Lakes | 538,600 | 544,903 | .. | 1.2 |
| Midwest | 990,120 | 947,251 | 4.3 | .. |
| New England | 80,568 | 84,677 | .. | 5.1 |
| Northwest | 920,182 | 835,511 | 9.2 | .. |
| Ohio Valley | 1,065,471 | 1,052,741 | 1.2 | .. |
| Pacific Coast | 286,537 | 327,342 | .. | 14.2 |
| Pacific Northwest | 270,950 | 277,680 | .. | 2.5 |
| Southeast | 758,904 | 802,817 | .. | 5.8 |
| Southwest | 581,710 | 628,216 | .. | 8.0 |
| Trans-Mo-Kansas | 393,911 | 396,528 | .. | 0.7 |
| Total All Boards | 8,026,647 | 8,013,755 | 0.2 | .. |

Substantial underestimates of national second-quarter loadings of several commodities were indicated in the tabulation of the results, however. The most serious underestimates were 47.7 per cent and 27.2 per cent for fresh fruits and other fresh vegetables, respectively, reflecting, as Mr. Kendall explained, "the many present day problems in the distribution of these products."

Expressed in percentage of accuracy, the commodity totals were underestimated 17.3 per cent for canned goods; 15.8 per cent for agricultural implements and vehicles; 11.7 per cent for cement; 10.1 per cent for sugar, syrup and molasses; and 18.5 per cent for poultry and dairy products. Overestimates of 12.9 per cent for cottonseed and products and 10.5 per cent for ore were the largest in that category. Other variations were less than 10 per cent from actual results, and in the case of lime and plaster and cotton the totals were underestimated by only 0.1 per cent.

Comparisons for the regional boards are shown in the accompanying table.

## Army Railroaders Surmount Locomotive Casualties

Soon after the fall of Cherbourg, heavy locomotives were top priority equipment for the army-operated French railways. A mass of tonnage had accumulated in the ports, awaiting removal to forward areas, and so completely effective had been Allied bombing and German demolitions that few locomotives had escaped the casualty list. Heavy repairs and running repairs had generally to be made, and in Normandy and Brittany practically all roundhouses (or engine sheds, as they are there known) had been destroyed.

At Le Mans, considered the most modern yard in France, everything was flat, and repairs had to be made in the open until the roundhouses and turntables could be put back into condition. At Lison, the picture was the same. An ammunition train parked within the yards received a direct hit from an aerial bomb, and when the smoke had cleared the yard was leveled. On a railway line running from Loire to Dijon, only 20 per cent of the locomotives were found in working condition. At Cherbourg, the roundhouse escaped any appreciable damage, and army railroaders quickly appropriated 22 engine stalls, and soon were turning 65 locomotives a day.

Headquarters, European Theater of Operations, has reported that 1,800 locomotives have issued from French and Belgian repair shops to date. At Namur, in Belgium, 127 locomotives and 1157 miscellaneous cars rolled from the repair shops in December. And daily, Liege and Herbesthal, two other large Belgian repair points, are adding to the railway rolling stock. The figures assume even larger proportions, considering the handicaps under which repair units have operated.

## Hails Schools' Vacation Cuts

Students and faculties of colleges and preparatory schools throughout the country have been commended by Col. J. Monroe Johnson, director of the Office of Defense Transportation, for voluntarily canceling their usual spring vacations, an action which is expected to result in considerable travel saving during the present critical transportation situation.

A few college authorities have expressed some concern that the travel saved by the vacation cancellations may be offset by parents visiting the students during the spring, Colonel Johnson said, adding that it is understood that in some colleges students have written their parents asking them not to travel to the schools.

## 1st M. R. S. Railroader Wins Special Commendation

Sgt. James E. Bumgarner, of the 1st Military Railway Service, and formerly in the Chicago, Burlington & Quincy's operating department, at Hannibal, Mo., has been awarded a certificate of commendation for "successful accomplishments" during and following the invasion of southern France, being credited with establishing contacts and maintaining liaison with the French railways and all military agencies, and carrying on "in a highly satisfactory manner arrangements for vitally essential train movements."

"His successful accomplishments are a distinct credit to himself and to the entire Military Railway Service," the citation read.

# Materials and Prices

The following is a digest of orders and notices that have been issued by the War Production Board and the Office of Price Administration since March 10, and which are of interest to railways:

**Emergency Provisions** — Special emergency powers were delegated to regional directors of the W. P. B. to assure more effective local action in cases of actual or impending disaster, and a state of disaster emergency was declared to exist in three cities in the Ohio River flood area —Cincinnati, Ohio, Louisville, Ky., and Evansville, Ind. W. P. B. offices in those flood-ravaged districts were authorized to take immediate steps under the new directive to obtain materials or equipment required to prevent any interruption of or damage to military or civilian production, distribution, transportation or communications, or for the prevention of any suffering, exposure or unsanitary conditions which might otherwise result.

Regional directors may assign preference ratings up to AA-1, irrespective of program determinations. They may also issue directives or AAA ratings when required to effect the immediate delivery of equipment or material other than controlled materials in cases where the AA-1 rating is not applicable or adequate to obtain delivery of the needed material on time either to prevent or alleviate distress. The directive authority of the field offices will operate to get delivery of even controlled materials, if these materials are in stock and are needed to meet the disaster condition. Such preference ratings and emergency directives may be issued up to $200,000 for each declared emergency without further authorization from Washington. Authorizations in execess of $200,000 may be granted by special supplements to the order from W. P. B. headquarters.

**Iron and Steel** — Order M-126 had been amended to bring it in line with other W. P. B. regulations and changes, to include some minor revisions and some clarifications of previous rulings. The order was originally issued on May 5, 1942, to provide an immediate over-all iron and steel conservation measure. Since that time other orders and regulations have been issued, which adequately control the use of iron and steel in a number of products and, accordingly, reference to 86 such products has been deleted from the amended order.

The order states that iron and steel for maintenance, repair and operating supplies for products prohibited under the order may be used only to replace parts of a product if the parts are to be used for maintenance and repair of such a product. The manufacture of a complete product that has been prohibited under the order is not permitted through the use of MRO.

Another change provides that iron and steel for water tanks and water tank towers (required in connection with authorized construction projects important to the production of war materials and highly essential civilian products and the development of public utility facilities) authorized by the appropriate W. P. B. subdivision on Forms GA-1456 or Form WPB-2274, may now be obtained without an appeal under M-126.

### Prices

**Hardwood Lumber**—Establishment of maximum prices for ungraded hardwood lumber produced by "small mills" in the Virginia southern hardwood area at a level $2 per M. f. b. m. above ceilings for ungraded hardwood lumber produced by "small mills" in other parts of the south has been announced by O. P. A. Amendment No. 17 to MPR No. 97 is effective March 16.

# GENERAL NEWS

## Eastman Bust Is Presented to I.C.C.

### Late O.D.T. director deserved to be called "great man" says Judge Fletcher

On March 15, the first anniversary of the death of the late Commissioner Joseph B. Eastman, the Association of Interstate Commerce Commission Practitioners presented to the commission the Eastman bust which was provided from funds collected under the sponsorship of the Association. All 11 commissioners were on the bench for the presentation ceremonies which were held in the commission's large hearing room.

The principal address was the "Tribute to Joseph Bartlett Eastman," by Judge R. V. Fletcher, vice-president of the Association of American Railroads. William W. Collin, Jr., president of the Practitioners Association, presided at the ceremonies, while the presentation was by Charles E. Bell, chairman of the Eastman Bust Committee, and the acceptance by I. C. C. Chairman John L. Rogers. I. C. C. Secretary W. P. Bartel unveiled the bust, which is the work of Oscar Mundhenk, brother-in-law of the late Frank Livingstone, who was associated with Mr. Eastman for many years as executive assistant.

In his brief remarks introducing Judge Fletcher, Chairman Collin paid tribute to Mr. Eastman, recalling especially the late commissioner's "fairness, good humor, and capacity for friendliness," which "captured the good will of all with whom he dealt."

**Eastman Bust**

**Greatness a By-Product** — Judge Fletcher opened with a setting forth of his view that greatness is never achieved as an end in itself—"it is achieved by devotion to the public service." Judged by this standard, the A. A. R. vice-president found that Mr. Eastman deserved the title of "great man." He proceeded to give a highlight review of the late commissioner's career, noting that in his early years he showed every deference to the views and experience of the senior members of the commission; he tempered his zeal and enthusiasm "with sanity," avoiding "the mistake of assuming to dictate to his seniors." Thus did Mr. Eastman lay the groundwork for his becoming a "diligent and forceful" member of the commission, enjoying "the confidence of his fellow members, litigants, and the public."

Judge Fletcher called Mr. Eastman's service as Federal Coordinator of Transportation a "fortunate epoch," even though he suspected that Mr. Eastman might have regarded that effort as something of a failure. As the A. A. R. vice-president saw it, however, this was the period wherein Mr. Eastman broadened his contacts and really got acquainted with the men who run the country's transportation systems. Thus Mr. Eastman returned to full service on the I. C. C. "a more useful man," and his organization and administration of the Office of Defense Transportation "served to illustrate the lessons he learned as coordinator."

**Aroused Co-operation**—Mr. Eastman's service in the directorship of O. D. T. was appraised by Judge Fletcher as the "crowning achievement of his career." His plan of administration was the "acme of wisdom," for it got the wartime transportation job done without in any way dampening the enthusiasm or crippling the initiative of the carriers. In closing, Judge Fletcher noted the confidence of Congress in Mr. Eastman's judgment, a tribute to "the clarity of his thinking and utterances."

"He lived a full and wholesome life with no thought of his own pleasure or aggrandizement," the A. A. R. vice-president added. "No man in his generation was more unselfishly devoted to the welfare of his fellow beings. He sacrificed his ease and health to the public service."

The program of the presentation ceremonies contained another tribute to Mr. Eastman, written by Daniel W. Knowlton, chief counsel of the commission. It concluded with as follows: "Widely acclaimed at his death as a great and splendid public servant, Mr. Eastman had lifted the appellation 'public servant' from obscurity. By the 'fruits' of his own labor, by his own 'works' he had made of it a title to be aspired to—the proudest title he possessed."

## Conclude Railroad Case Against Security Bill

### Fort of A. A. R. and Miller of Short Lines make closing statements

Railroad presentations in opposition to the Railway Labor Executives Association program for liberalizing the Railroad Retirement and Railroad Unemployment Insurance acts were concluded at last week's sessions of House Interstate and foreign commerce committee hearings on H. R. 1362, the bill embodying the program, which is sponsored by Representative Crosser, Democrat of Ohio. The closing railroad arguments were made by J. Carter Fort, vice-president and general counsel of the Association of American Railroads, and C. A. Miller, vice-president and general counsel of the American Short Line Railroad Association.

They were followed by representatives of the bus, truck, forwarder, public warehousing and ice industries, and railroad construction contractors, all of whom objected to provisions of the bill which might bring them in whole or in part under the retirement and unemployment acts. The committee also heard R. M. Williamson, actuarial consultant of the Social Security Board, who discussed actuarial procedures and actuarial bases for studies of the kind previously put into the record by the bill's proponents. At the conclusion of such testimony, the hearings were adjourned subject to the call of the chairman. R. L. E. A. rebuttal arguments in reply to the opposition presentations of the railroads, the Brotherhood of Locomotive Engineers and the Brotherhood of Railroad Trainmen remain to be heard when the sessions resume.

**Report from McNutt** — Meanwhile Chairman Lea had put into the record a report on the bill which he had received from Paul V. McNutt, administrator of the Federal Security Agency. Among other comments on provisions of interest to F. S. A., Mr. McNutt suggested that employees of motor carriers now covered by the general Social Security System should remain under such coverage. He also asked for clarification of various provisions relating to border-line cases of coverage.

In his statement concluding the A. A. R. presentation, Mr. Fort noted that the present retirement and unemployment systems are admittedly "the most generous and favorable systems that are applicable to any one," being "much more favorable than the general social security system." He wondered, then, why there was need for a

(*Continued on page 565*)

# I.C.C. Modifies Its Susquehanna Plan

## Larger total capitalization allows creditors more generous treatment

Upon further consideration, the Interstate Commerce Commission has modified the provisions of its plan for the reorganization of the New York, Susquehanna & Western under section 77 of the Bankruptcy Act in order to make more liberal allowances of new securities to preferred creditors and to give some additional recognition to the road's earning possibilities. The terms of the previous plan were outlined in *Railway Age* of July 29, 1944, page 211.

The trustee has made a "commendable record in reducing the past and probable future operating expenses and in the development of traffic possibilities," said the commission in its supplemental report. "Although the savings in operating expenses are not of themselves assurances of future traffic, we think that in the light of all the circumstances, including the possible savings through increases in the use of diesel power, the conclusion of Division 4 (which set forth the first plan) that the reorganized company's expectable earnings available for interest and other corporate purposes in a normal year are from $600,000 to $700,000, is somewhat too low. Upon further consideration we find that such earnings may be expected to range from $700,000 to $775,000."

**Stockholders Still Out**—No change was made in Division 4's finding that the equities of the old company's stockholders have "no value." Whereas the division's plan called for a new capitalization of $14,452,844, as compared to the old company's $38,885,000, the modified plan allows $15,952,844. The capitalization and annual charges under the modified plan are shown in an accompanying table.

The annual charges on fixed-interest debt, before other provisions, would total $209,623. The $62,000 allocated for additions and betterments is the estimated charge against net income. The basic provisions for this purpose is $130,000 annually through May 1, 1950, and then $85,000, but it is assumed that depreciation on roadway and structures will offset the charges for betterments to the extent of $68,000 a year.

**Adjustments in Allocations**—No major change is made in the modified plan so far as the new fixed-interest securities are concerned. The amount of income bonds to be issued, however, is increased from $2,500,000 to $4,000,000, and adjustments in the allocation of securities to the several classes of creditors are established as shown in an accompanying table for each $1,000 principal amount of claim.

In addition, the old 5 per cent Terminal bonds would be replaced by an equal principal amount of new 4 per cent Terminal bonds, plus cash for interest accrued. Holders of Paterson Extension bonds would participate in the distribution of certain non-carrier property. The unsecured claims represent principally those of bondholders of the bankrupt Wilkes-Barre & Eastern and of the Lehigh & New England. No provision was made for any participation by the Erie, a settlement between that road and the old company already having been consummated.

**Adjustments in Allocations**

| | 4% first and consol. bonds | 4½% income bonds | Pref. stock | Common stock |
|---|---|---|---|---|
| Midland of N. J. bonds | $507.78 | $829.72 | ..... | ..... |
| Refunding bonds | 328.09 | 295.17 | $730.91 | ..... |
| 2nd mortgage bonds | ..... | ..... | 263.46 | $1,150.00 |
| General mortgage bonds | ..... | ..... | 57.01 | 923.06 |
| Paterson Extension bonds | ..... | ..... | ..... | 1,200.00 |
| Unsecured claims | ..... | ..... | ..... | 163.33 |

The commission's report went at length into the controversy between the Susquehanna and the New York Central over steps taken by the debtor's trustee to disaffirm certain trackage agreements covering switching in the vicinity of its Edgewater, N. J., terminal. The commission remarked that "we see no reason why the situation can not be adequately remedied without the disaffirmance of the basic contracts, by the termination of the existing switching agreements and the publication by the Susquehanna of just and reasonable rates which would cover all the movements of the Central's cars," and it found that "the circumstances do not warrant inclusion in the plan of a provision for the rejection" of these contracts "for application in the event the court should hold that such contracts may not be rejected by the debtor's trustee but that they may be rejected by the plan."

**The Modified Plan of Capitalization**

| | Amount issued | Annual charges |
|---|---|---|
| Equipment obligations | $452,844 | $9,623 |
| Fixed-interest bonds | | |
| 4 per cent terminal bonds | 2,000,000 | 80,000 |
| 4 per cent first and consolidated bonds | 3,000,000 | 120,000 |
| Additions and betterment fund | | 62,000 |
| Sinking fund, terminal bonds | | 20,000 |
| 4½ per cent general mortgage income bonds | 4,000,000 | 180,000 |
| Total | 9,452,844 | 471,623 |
| 5 per cent preferred stock | 3,000,000 | 150,000 |
| Common stock (stated at $100) | 3,500,000 | |
| Total | 15,952,844 | 621,623 |

# Railroads Attack Train Limit Law

## Constitutionality of Arizona statute challenged in A.A.R.'s brief

Asserting that "it is difficult to escape the conclusion that there would have been a physical collapse in transportation during this critical war period, with grave consequences to our national security, if train-length limitations, similar to the Arizona restriction, had been effective in a substantial number of states," the Association of American Railroads has filed a brief as *amicus curiae* in the case to be argued next week in the Supreme Court of the United States in which the Southern Pacific has appealed a decision of the Arizona Supreme Court upholding the constitutionality of that state's train limit law.

The case, docketed as *Southern Pacific* vs. *Arizona*, originated when the state sought to apply penalties for violations of its statute limiting train lengths. The trial court, considering the effect of the statute on the safety of all train operation, the delays imposed on interstate commerce by compliance with the limitations, and the constitutional issues raised, found for the railroad. The state supreme court, however, reversed the decision, acting, according to the A. A. R., "solely on the assumption of a rule of law that the statute was justified by the police power of the state notwithstanding its effects on interstate commerce, and that in determining this, no consideration need be given to the facts found by the trial court or shown by the evidence."

**Basis of Appeal**—The railroad's appeal to the Supreme Court therefore was based on its contention that the statute was unconstitutional, being in conflict with the "commerce clause" and the "due process clause" of the fourteenth amendment to the Constitution. Its conflict with the commerce clause, said the Southern Pacific, was in its invasion of the field of exclusive national regulation, in its extraterritorial effect on trains and operations in adjoining states, in exceeding the scope of any powers the state might be said to have in the "concurrent" field of commerce regulation, and in conflicting with and supplementing existing federal safety legislation. Its conflict with the due process clause, the railroad said, was in its "arbitrary and unreasonable" nature, without "rational basis as a police power regulation" or "reasonable relation to health and safety."

While agreeing with and supporting these contentions, the A. A. R. brief emphasized "certain aspects of particular significance with respect to the national interests in safe, efficient and economical rail transportation, the national policy concerning such transportation as established and declared by Congress, and the conflict between that interest and policy, on the one hand, and drastic limitation of train lengths by state regulation, on the other."

**Long Trains Bring Safer Operation**—The "obvious and fundamental fact" with

respect to long-train operation (that is, freight trains of more than 70 cars and passenger trains of more than 14 cars), the brief asserted, is that "it permits the movement of a given volume of traffic in fewer trains than would otherwise be needed. As a result of fewer trains on the road, there are fewer meets and passes and less interference and congestion. Fewer locomotives are required. The volume of freight which can be transported over a given track is increased and in this way track capacity is enlarged. These results bring about safer, more efficient, and more economical operation and faster, more reliable and better service to the public."

The Arizona law, the brief stated, "deals with a subject predominantly of national rather than local concern and one which requires uniform regulation, if any should be needed." It "strikes at the physical operation of the railroads and interferes with and hampers that operation. Its effect on interstate commerce is not incidental or indirect but is direct, immediate, unavoidable, and serious." Further, it "serves no local interest or objective which justifies the burden which it casts upon interstate commerce. The local purpose which it is claimed to serve is one of safety, but . . . the law has an adverse effect on safety." Reviewing the declaration of national transportation policy "explicitly stated" in the Transportation Act of 1940, the brief argued that the Arizona law is "squarely in conflict" with that policy and "impinges in a violent manner upon the national interest in commerce."

**More Trains, More Casualties**—Discussing then the effect of the train limit law on safety of operation, the A. A. R. brief pointed out that the only safety contribution seriously claimed for the statute is with respect to "slack-action" casualties to employees. While contending that the law has no perceptible beneficial effects with respect to such casualties, it argued that, even if it did, they are "overwhelmingly offset" by the injurious effects with respect to much more important classes of casualties, which tend to increase either in direct proportion to, or in greater proportion than, the number of trains operated.

After outlining the operating problems to which train limitations give rise, and the additional expenses incurred in meeting these requirements, the brief went on to explain the impracticability of regulating train lengths through "diversity of control by local authorities." It asserted that "state action affecting interstate commerce is not permissible when the nature of the subject matter regulated and the nature of the regulation demonstrate that 'superior fitness and propriety' demand uniformity of control by a single authority."

**Constitutional Questions**—Turning then to a discussion of "controlling constitutional considerations," the brief posed two groups of questions. First, Is the limitation of train length a matter of local rather than of national concern? Are there peculiar local conditions in Arizona which require different treatment from that needed or given elsewhere? Are the number and the diversity of the problems of train length and of train operation generally such that these problems could "never be adequately dealt with by Congress"? And, even if those questions could be answered in the affirmative, there follows a second group, Does the Arizona law erect "barriers or obstacles to the free flow of commerce"? Does it "infringe the national interest in maintaining the freedom of commerce across state lines"?

The answers to the questions so phrased, the A. A. R. counsel argued, "are obvious." Having developed them at length, the brief concluded with the contention that the state supreme court, in passing on the constitutional question, "wholly disregarded the determinative facts." "This raises the basic question whether the facts as to burden and benefit are pertinent to judicial judgment on the constitutional issue. On this question, the decisions and the opinions of this [Supreme] Court . . . are uniformly contrary to the action and lack of action of the Arizona Supreme Court." The state court, therefore, it said, should be reversed, and the state law should be held unconstitutional.

## Senate Cuts I. C. C. Funds

In passing the Independent Offices Appropriation Bill for the fiscal year ending June 30, 1946, the Senate last week cut the proposed appropriation for the Interstate Commerce Commission to $7,676,338—$214,191 less than the $7,890,529 carried in the bill as it passed the House.

The bill came from the Senate committee on appropriations with a cut of $364,191 recommended for the I. C. C.; but Chairman Wheeler of the committee on interstate commerce put over an amendment to restore $150,000 of that amount. This restoration was to the commission's general administrative fund, leaving it still $141,045 short of the amount approved by the House. The appropriations committee's recommendations were adopted with respect to the other cuts—$43,146 off the proposed appropriation for valuation work, bringing it down to $388,319, and $30,000 off the appropriation for motor transport regulation, bringing it down to $2,502,619. The bill is now in conference.

## P. R. R. Designs Another Geared-Turbine Steam Locomotive

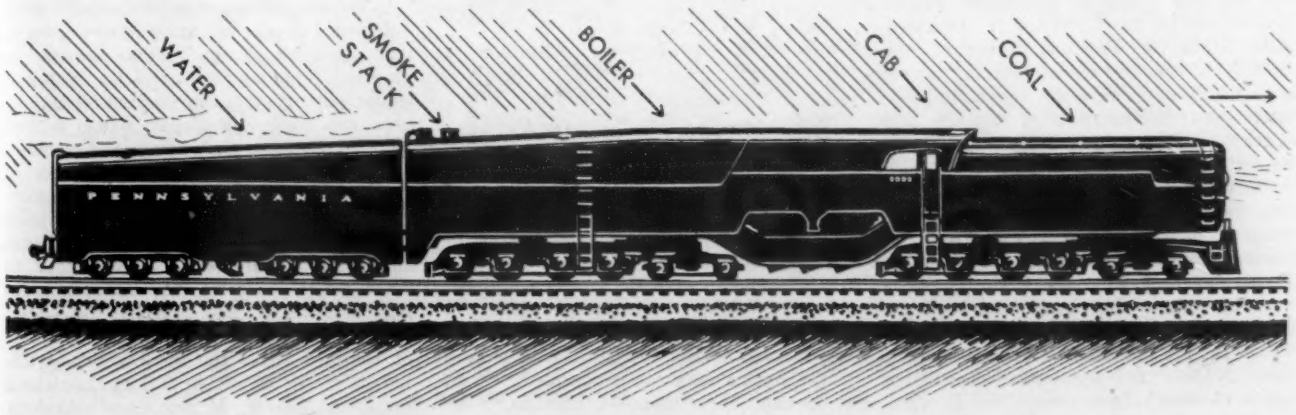
The Pennsylvania announced on March 20 that its engineering staff has designed a new type of high-speed coal-burning steam-turbine locomotive for both passenger and freight service which, from the unique appearance it will present, has been designated the "Triplex."

At the head end of the locomotive will be a large coal compartment followed immediately by a cab and boiler section, with the cab at the front and the smokestack at the rear. This combination will be supported by a cast-steel frame mounted on two swiveling trucks, one under the coal compartment and the other under the boiler. Each truck will consist of four pairs of driving wheels and two pairs of guiding wheels. Behind the boiler will be coupled a capacious water tender.

A direct-drive steam turbine will be geared to the driving wheels of each of the two swiveling trucks and the pair of turbines will together produce 9,000 hp. The locomotive will cover nearly 137½ ft. of track from front to rear with a wheel base of 122½ ft. However, the swiveling trucks are said to permit its operation around any curve that can be negotiated by a passenger coach.

The coal compartment will have capacity for 32½ tons of fuel, while the water tender will carry 21,000 gals. The coal compartment, in addition, will have space for water, and as the fuel is consumed water will be automatically transferred from the tender to maintain constant weight on the driving wheels of the leading truck. When coal and water are taken, the water that has been transferred will be automatically returned to the tender.

The use of geared turbine power will make possible the use of smaller diameter driving wheels, which will permit larger




**Proposed Pennsylvania Locomotive Driven by Geared Steam Turbines**

boiler capacity for the same road clearances and improve the locomotive's efficiency. Mounting the coal compartment on the same frame as the boiler will improve and simplify the operation of the mechanical stoker.

This is the third new locomotive design recently announced by the Pennsylvania in its program of improving the performance of coal-burning steam locomotives, both passenger and freight. The first was the Q-2 Class 4-4-6-4 type reciprocating locomotive, and the second the S-2 type geared-turbine locomotive.

## Glass-Domed Passenger Car Planned by Burlington

Working in conjunction with engineers and draftsmen of the General Motors Corporation, the Chicago, Burlington & Quincy, through its president, Ralph Budd, has announced plans for the construction of a new type of passenger car which will be featured by a dome made entirely of glass.

Details of the new car were made public in an address delivered by Mr. Budd at a meeting of the Executives Club of Chicago on March 16, at which Charles F. Kettering, vice-president and a director of General Motors, also spoke.

Mr. Budd told his listeners that sculptors, designers and artists of General Motors had conceived the idea of giving railroad passengers an entirely new and unobstructed view of the country through which they ride by designing a car "without any inhibitions or restrictions such as past railroad practices or standards." As a result a car has been produced which is provided with an upper level of seats and with glass domes of an unusual design.

According to present specifications, the floor of the middle section of the car will be slightly lower than in standard cars and will be roofed with a glass-enclosed dome. In addition to providing the two seat levels the new car will add to the seating capacity. After exhibiting slides showing models of the new car Mr. Budd declared that the Burlington will remodel a standard car to conform with the new design for experimental and demonstration purposes.

## Representation of Employees

The Brotherhood of Locomotive Firemen & Enginemen has supplanted the Brotherhood of Locomotive Engineers as the Railway Labor Act representative of Peoria & Pekin Union engineers, according to results of a recent election which has been certified by the National Mediation Board. Meanwhile, on the Louisville & Jeffersonville Bridge & Railroad Company, the B. of L. E. won two recent election contests with the B. of L. F. & E., supplanting the latter as representative of firemen and hostlers while at the same time retaining its right to represent engineers.

On the Delaware, Lackawanna & Western, the Order of Railway Conductors has retained its right to represent road conductors, having beaten the challenging Brotherhood of Railroad Trainmen by a vote of 212 to 70. Yardmasters of the Monongahela Connecting have chosen the B. of R. T.; the South Buffalo's carmen, their helpers and apprentices (including coach cleaners) have chosen the Brotherhood of Railway Carmen of America, operating through the Railway Employees Department, American Federation of Labor; and the porter-waiters and cooks employed by the Chicago Great Western have chosen the Joint Council Dining Car Employees, Local 516, Hotel and Restaurant Employees International Alliance, A. F. of L.

## Freight Car Loading

Loadings of revenue freight for the week ended March 17 totaled 815,789 cars, the Association of American Railroads announced on March 22. This was an increase of 49,499 cars or 6.5 per cent above the preceding week, an increase of 39,594 cars or 3.9 per cent over the corresponding week last year, and an increase of 47,655 cars or 6.2 per cent above the comparable 1943 week.

Loading of revenue freight for the week ended March 10 totaled 766,290 cars, and the summary for that week, as compiled by the Car Service Division, A. A. R., follows:

**Revenue Freight Car Loading**

For the Week Ended Saturday, March 10

| District | 1945 | 1944 | 1943 |
|---|---|---|---|
| Eastern | 152,754 | 154,871 | 154,051 |
| Allegheny | 164,632 | 173,500 | 168,044 |
| Pocahontas | 51,016 | 54,651 | 58,383 |
| Southern | 123,302 | 125,671 | 124,350 |
| Northwestern | 80,001 | 81,262 | 80,888 |
| Central Western | 122,565 | 119,946 | 114,505 |
| Southwestern | 72,020 | 70,364 | 68,824 |
| Total Western Districts | 274,586 | 271,572 | 264,217 |
| Total All Roads | 766,290 | 780,265 | 769,045 |
| Commodities | | | |
| Grain and grain products | 40,644 | 45,506 | 48,599 |
| Live stock | 13,267 | 14,247 | 12,504 |
| Coal | 157,125 | 171,343 | 178,481 |
| Coke | 14,946 | 14,918 | 14,821 |
| Forest products | 42,443 | 43,929 | 42,308 |
| Ore | 16,555 | 13,241 | 14,812 |
| Merchandise l.c.l. | 97,652 | 104,130 | 96,630 |
| Miscellaneous | 383,658 | 372,951 | 360,890 |
| March 10 | 766,290 | 780,265 | 769,045 |
| March 3 | 785,264 | 786,893 | 748,926 |
| February 24 | 771,843 | 780,984 | 782,921 |
| February 17 | 783,738 | 774,237 | 752,019 |
| February 10 | 755,436 | 793,181 | 765,271 |
| Cumulative Total, 10 Weeks | 7,602,795 | 7,879,974 | 7,484,334 |

*In Canada.*—Carloadings for the week ended March 10 totaled 69,105, as compared with 67,468 cars for the previous week, and 69,188 cars for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

| | Total Cars Loaded | Total Cars Rec'd from Connections |
|---|---|---|
| Total for Canada: | | |
| Mar. 10, 1945 | 69,105 | 41,946 |
| Mar. 11, 1944 | 69,188 | 40,566 |
| Cumulative Totals for Canada: | | |
| Mar. 10, 1945 | 646,097 | 361,440 |
| Mar. 11, 1944 | 676,788 | 392,110 |

## Wheeler and McCarran Agree on Hobbs Bill Procedure

The House-approved Hobbs bill to restrict the Interstate Commerce Commission's power to reduce the capitalization of railroads in section 77 reorganization proceedings and to give the courts additional power in shaping reorganization plans will be considered by the two Senate committees—judiciary and interstate commerce—if the Senate adopts the amended version of Senate Resolution 94, sponsored by Chairman McCarran of the judiciary committee to discharge the interstate commerce committee from further consideration of the measure.

Following through from an understanding between himself and Chairman Wheeler of the interstate commerce committee, Mr. McCarran has added to his resolution a proviso to the effect that when the bill is reported to the Senate from the judiciary committee it will then be referred back to the interstate commerce committee. The bill is H.R. 37, sponsored by Representative Hobbs, Democrat of Alabama.

## Analysis of 1941 and 1942 Motor Carrier Accidents

The Interstate Commerce Commission has made public a report on "Motor Carrier Accidents 1941-1942," which was prepared by members of the staff of the Bureau of Motor Carriers. Although the commission's Division 5 authorized the release of the report, an accompanying notice from Secretary W. P. Bartel says that it "has not been considered in detail or approved by Division 5 and it is not, therefore, to be construed as an expression of the views of the division."

The letter of transmittal by Director W. Y. Blanning of the Bureau of Motor Carriers notes that the analysis comprises 11,251 accidents for 1941 and 9,358 for 1942. He also says that "because of the shortage of personnel, these data have not been analyzed to ascertain the causes of accidents to the extent which would have been desirable had facilities permitted." The last previous similar analysis for the year 1939 was considerably more detailed. A report covering 1940 accidents is not contemplated.

## I.C.C. Divides Forwarder Rights Between National and Affiliate

Reporting on reconsideration of the FF-71 proceeding involving the freight-forwarder application of the Texas Package Car Company, the Interstate Commerce Commission has now agreed to give that applicant a permit covering operations over routes embracing Atlantic and Gulf coastwise water carriers, while at the same time eliminating authority to engage in such operations from the permit of National Carloading Corporation, Texas' parent company. Commissioner Miller, dissenting, protested that the majority's action, taken "principally, if not solely, for the purpose of protecting the interest of the minority stockholders of applicant," was unnecessary and not in the public interest.

In the original report in the case, Division 4 denied Texas' application on the ground that favorable action would amount to granting duplicate authority to National whose general permit authorized operations over the routes involved. After it had affirmed Division 4's finding, the commission reopened the case upon petition of applicant and National. The petitioners asked for a decision like the commission has now made. The permit issued to Texas authorizes operations as a forwarder of commodities generally over routes embracing coastwise common carriers by water, in interstate commerce, from all points in 21 specified states and the District of Columbia to all points in Texas, Louisiana, Oklahoma, New Mexico, and Arizona. National's permit is modified to exclude

the right to utilize coastwise water carriers from and to such points. The report notes that National's interest in Texas consists of its ownership of 2,300 shares of the 3,700 shares of stock outstanding.

Dissenter Miller called the granting of separate permits to National and one of its affiliates "inconsistent with the principle that in order to avoid the possibility of unfair competitive practices discrimination, etc., multiple authority should not be issued to persons or concerns under common control." He called the majority's action in restricting National's permit "clearly contrary" to the commission's previous policy of granting forwarder permits "without any restriction as to the type of common carrier services to be utilized."

"The limitations contained in the permits granted herein," he went on, "indicate that forwarder operations by overland routes are not considered to be competitive with similar operations via water routes from and to points in the same general territories. It would seem, therefore, that all the outstanding freight forwarder permits are severable and that the holders thereof may transfer portions of their authority covering operations by particular types of carriers to persons who are ready, able and willing properly to perform such service. This could result in a multiplicity of duplicating and competitive services, with consequent unsound and uneconomical conditions."

## Economical Air Transportation Still to Come, Says Air Chief

Declaring air cargo transportation to be "still in the development stage," Col. Harold R. Harris, chief of staff, U. S. Army Air Transport Command, told a meeting of the American Society of Mechanical Engineers in New York recently that "we may expect the airplane to become truly a commercial freighter of the skies," if aircraft men develop combinations which will deliver by air as economically and as quickly as competing forms of transportation.

Of the opinion that the Air Transport Command, which has received such "rough" assignments as delivering freight over "the Hump" from India to China, has "stepped many years into the future of air transportation and taken on a job which may not develop in the field of postwar commercial air cargo for some years to come," Colonel Harris said that the system thus far adopted by A. T. C. has been working effectively. He pointed to the figures for 1944, during which time Air Transport Command carried cargo, passengers and mail totaling 857,511,531 ton-miles, and transported 402,000 tons of cargo alone—as he put it, "roughly the amount required to fill a freight train with its locomotive in Boston and its caboose well inside the city limits of Portland, Me."

The air chief, discussing some of the practical results obtained by the Air Transport Command, as they will affect the future of commercial air cargo, said, in part: that "within payload limitations, sooner or later anything that can be physically loaded into or on an airplane will be carried somewhere for some purpose some time." He added that airplane floors can now be built to take more concentrated loads than are likely to be found in most commercial operations, but that "no cargo airplane now in general use has the ready accessibility and ease required for rapid and economic loading and unloading."

## February Operating Revenues Down Five Per Cent

From preliminary reports of Class I roads representing 81.4 per cent of total operating revenues, the Association of American Railroads has estimated that the February gross totaled $586,203,824, a decrease of five per cent under the $598,367,956 reported for February, 1944. Estimated February freight revenues were $427,718,449, compared with $448,858,016, a decrease of 4.7 per cent. Estimated passenger revenues were $100,689,873, compared with $109,561,661, a decrease of 8.1 per cent.

## Julius G. Luhrsen Appointed to Retirement Board

President Roosevelt on March 19 sent to the Senate his appointment of Julius G. Luhrsen, executive secretary-treasurer of the Railway Labor Executives Association, as a member of the Railroad Retirement Board for the remainder of a five-year term expiring August 29, 1949. Mr. Luhrsen will become the labor representative on the board, succeeding Lee M. Eddy whose term expired on August 29, 1944.

As noted in the *Railway Age* of February 10, page 311, the labor organizations recently nominated Mr. Luhrsen after the President had made no move for five and one-half months to act on their previous recommendation that Mr. Eddy be reappointed. Mr. Eddy, a former vice-president of the Order of Railroad Telegraphers, had been labor's representative on the board since its organization. His replacement leaves Chairman Murray W. Latimer as the only survivor of the original membership. The first management representative, James A. Dailey, was replaced after one term by M. Roland Reed, who was also replaced after one term by the present management representative—Frank C. Squire.

Mr. Luhrsen was born at Des Plaines, Ill., April 1, 1877, and entered railroad service in 1893 as a telegraph operator on the Illinois Central. Thereafter he served during the 1895-1908 period as telegrapher and dispatcher on the Wabash; and from 1908 until 1917 as dispatcher and chief dispatcher on the Great Northern. Since 1917 Mr. Luhrsen has been president of the American Train Dispatchers Association, which he founded. He has been executive secretary-treasurer of R.L.E.A. with headquarters at Washington, D. C., since 1938, meanwhile retaining his connection with the Dispatchers Association as president-on-leave.

## Truckers Want Rate Increases

Tariff publishing agents for motor carriers operating in New England and in the Middle Atlantic states have applied to the Interstate Commerce Commission for authority to publish tariff supplements carrying temporary increases in rates. The increases contemplated would be general in nature, and similar adjustments are understood to be in contemplation by truckers in other parts of the country.

The proposed New England adjustment would increase all minimum charges 10 cents per shipment, and raise other rates one cent to 2½ cents per 100 lb. Where rates are published on a truckload basis, the proposed increase would range from 60 cents to $2 per truckload depending on the classification rating of the traffic involved. The Middle Atlantic states proposal is to increase truckload rates one cent per 100 lb. and less-truckload and any-quantity rates 2¼ cents per 100 lb.

## Wheeler Would Publish I. C. C. Bureau's Traffic Forecast

Chairman Wheeler of the Senate committee on interstate commerce has introduced Senate Resolution 101 to provide for the printing as a Senate document of the report entitled "Post-War Traffic Levels," which was prepared in the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The report was originally issued last October, as noted in the *Railway Age* of October 28, 1944, page 665; and a corrected version was made public a couple of months later, as noted in the issue of December 23, 1944, page 970.

In introducing the resolution Senator Wheeler referred to the report as one which "brings together in a summary the very best opinion on post-war traffic levels and estimates of the national income as it will bear on the revenues of common carriers." He has been informed that the demand for copies of the report is one of the heaviest the Bureau has ever experienced.

## Bills in Congress

Representative Sullivan, Democrat of Missouri, has introduced H.R. 2651 "to prevent restaurants operated in connection with stations and terminal facilities of common carriers subject to the Interstate Commerce Act from discriminating against members of the armed forces on account of race or color." Penalty provisions of the bill stipulate that violators may be fined $500 or imprisoned for three months, or both.

Senators Russell of Georgia and Maybank of South Carolina, Democrats, are joint sponsors of S. 737 to establish a Savannah Valley Authority.

## Finds Diner Discrimination Case Not Supported by Facts

Examiner J. Edgar Snider has recommended in a proposed report in the No. 29129 proceeding that the Interstate Commerce Commission dismiss the complaint of Yolanda Barnett against the Texas & Pacific, alleging failure to furnish dining car service, on the ground that she suffered no undue or unreasonable prejudice or disadvantage.

The complainant, a negro, was traveling from St. Louis, Mo., to Dallas, Tex., as a first class Pullman passenger on the "Sunshine Special," and the alleged prejudicial treatment on account of color or race ocurred in the service of breakfast on a dining car, which had been converted from a standard lounge car, operated in

Texas. In conformity with state segregation laws, curtains were arranged so that tables with seats for 12 persons could be separated from the rest of the car. To avoid crowding, a company rule prohibited passengers from standing in the aisle of the diner.

The examiner described the road's procedure for accommodating colored dining car patrons as follows: Before making calls for meals, the curtain partitions were extended and reservation cards were placed on the tables thus inclosed. The first call for meals was made first in the coaches assigned to negroes, so the number of colored passengers desiring service could be determined. Later calls were made in the Pullmans and other coaches. Negro passengers in the Pullmans thus were called at the same time as white passengers.

White passengers were seated in the larger part of the car until that section was completely occupied. If, after the first call, no colored passengers presented themselves for service within a reasonable length of time (15-20 min.), "it is assumed that none desires service and the curtains are tied back against the walls. The tables which had been reserved for colored passengers are then made available to white passengers. If, however, a colored passenger does seek service after white passengers have been seated in the smaller compartment, he is asked to wait until that space can be cleared of the white passengers, at which time the curtain will be again drawn and the colored passenger seated and served. Additional white passengers are not permitted to sit in the smaller compartment until after the waiting colored passenger has been served. A colored passenger will not be served in the compartment set aside for colored passengers, however, while a white passenger is eating there, even though there are vacant tables in that compartment."

The complainant in this case went from her Pullman to the diner about 10:00 a.m. for breakfast. Finding the car filled, she came back again in about 30 min., at which time there were some vacant tables, although there were white passengers seated in the section ordinarily reserved for colored patrons. When asked by the steward to wait until this section was vacated, she consented, but remained standing in the aisle of the diner, although the steward advised her to return to her Pullman, promising to send for her when the compartment was vacated by white passengers. A short time later the train conductor told her to leave the diner, and when she did not comply he attempted to eject her forcibly. A waiter then intervened and persuaded her to return to her Pullman.

When the steward within 30 min. thereafter sent a waiter to inform her that she could be served in the diner, she said she did not want to be served, and she also refused to be served in the Pullman, stating that she had been humiliated and could not eat. During the morning, the examiner pointed out, 198 white passengers had been served, but no negro passengers had been in the diner until the complainant appeared. No white passengers were seated in the section set aside for negroes after she asked for service, and she was notified when she could be served.

The examiner concluded that the record was "convincing that substantial equality of treatment and service with respect to the use of dining facilities was furnished" by the Texas & Pacific to "all persons," and that its general practices are "reasonable and adequate." "This proceeding in all probability would not have been brought," he remarked, "had it not been for the precipitate action of the conductor."

## Jersey Central Brochure

"645 Miles in Five Minutes" is the arresting title of a 12-page brochure compiled by the Jersey Central from a number of its 1944 newspaper advertisements. The booklet deals with facts about C. N. J. lines and touches on the eastern transportation picture generally, and the estimated reading time for a trip over "645 miles of line" is "only about five minutes." Freight and traffic representatives are listed, and according to William Wyer, chief executive officer, they "will be glad to give you their full help at any time."

"Meet 'Choo Choo Baby'" is the title of one advertisement which explains that this 19-year-old Diesel locomotive is "still going strong" in the Bronx terminal yards of the Jersey Central. Another deals with coal cars at pier 18 in Jersey City, where it is said, more than 19 million tons of coal have been handled by this road in the past 12 months.

## New Santa Fe Bridge Over the Colorado Now in Service

Marking formal completion of one of the largest railway bridge construction projects to be carried out in this country in recent years, regular train service was inaugurated on March 7 over a new bridge built by the Atchison, Topeka & Santa Fe across the Colorado river at Topock, Ariz. Located on the double-track main line of the Santa Fe—a line called on to handle an important share of the record burden of transcontinental traffic that has been produced by war-time influences—the new bridge was constructed to replace an existing single-track structure nearly 55 years old, which, because of structural deficiencies, was no longer adequate to meet the needs of present-day operating conditions.

Because of the physical conditions existing at the crossing, including the width of the river and the depth that it was necessary to sink the foundations to land them on solid rock, the construction of the new bridge represented a major engineering undertaking. Located a few hundred feet upstream from the old structure, it is of double-track construction and has a total length of 1,506 ft. 9 in., consisting of three 350-ft. deck-truss spans over the channel, a 50-ft. beam span and a 100-ft. deck-girder span at the east end, and three 100-ft. deck-girder spans at the west end. The seven piers and two abutments are of concrete construction and are supported on reinforced concrete cylinders which are nearly all carried down through a considerable depth of silt and unstable material to bed rock. This depth was such, being 123 ft. below the surface of the water at one pier, that it was necessary to employ pneumatic methods in sinking most of the caissons.

Because of the deck-type construction of the new bridge and the necessity of complying with clearances from low steel to the

**The New Santa Fe Bridge (in background) Over the Colorado, as Seen from the West Side of the River. This View Also Shows the Existing Bridge at the Far Right and a Portion of the Old Line on the West Bank, Which Was on a Curve of Approximately 10 Deg.**

normal water level specified by the Secretary of War, the grade line of the new bridge is considerably higher than that of the old structure, the increased height being 25.8 ft. at the east end and 33.3 ft. at the west end. This situation, in combination with the fact that the existing line immediately west of the river was in a somewhat vulnerable position with respect to encroaching silt in the river and erosion of its banks, dictated the provision of a west approach for the bridge several miles long, which is on higher ground than the old line and which incorporates a greatly improved alinement.

Work on the substructure of the new bridge was started on November 16, 1942, and was completed on July 1, 1944. Erection of the superstructure was started on May 1, 1944, and was completed in February of this year. As a measure of the magnitude of the project, the construction of the bridge required 14,077 cu. yd. of foundation excavation, the placing of 17,878 cu. yd. of concrete in the substructure, and the erection of 6,506 net tons, or 13,012,000 lb., of bridge steel, requiring the field driving of 106,808 rivets.

## Conclude Railroad Case Against Security Bill

(*Continued from page 559*)

change which would take the group "now preferred" and give it "even more preferential status."

**Wholly New Set-Up Proposed**—The A. A. R. vice-president mentioned briefly some of the more important of the 90 amendments to the present acts which the bill proposes. In this connection he laid particular emphasis on the proposals to add survivor-annuity benefits to the retirement system and sickness and maternity benefits to the unemployment system. Addition of those features, he said, would make the systems "wholly different from what they are today," for they would extend coverage to situations which have "no possible relationship to the railroad industry, no possible relationship to employment by railroads, and no possible relationship to any conditions which are peculiar or special to railroad employment or to the railroad industry."

Continuing, Mr. Fort set forth seven general reasons why the railroads oppose the bill. It is, he said, "class legislation of a most flagrant kind"; the impact of its discriminatory taxes against the railroads would seriously injure the industry and impair its ability to maintain its competitive position; and the bill "wholly overlooks and disregards the fact that social security is the problem of all our people and not a problem which can be fairly, or intelligently, or decently isolated to a particular segment of our population, the railroad employees."

**Would Be Financially Unsound**—Also, the railroads insist that the proposed set-up would be "financially unsound" so far as the retirement system is concerned; and, so far as the unemployment act amendments are concerned, it would divert "to alien purposes monies which are now in a trust fund." Finally, Mr. Fort called attention to the failure of R. L. E. A. to try collective bargaining before coming to Congress; he asserted that the bill is contrary to the Transportation Act of 1940's declaration of policy in that it "discriminates against some carriers and in favor of others," and "tends to undermine the financial stability of the railroad industry and the ability of the railroad industry to offer efficient, adequate service to the public."

"The foundation of social security for railroad workers," the A. A. R. vice-president said in another place, "is a thriving industry maintaining its competitive position, and this bill threatens that." He calculated that the $100,000,000 a year in new taxes which the bill would impose on the railroads would be enough money on a 4½ per cent basis to carry a $2.2 billion investment in capital improvements. He also warned that enactment of the bill might set a precedent for the general social security system, although those interested in that system had no notice that their interests were involved at the hearing which "purports to be limited to the railroads."

**Latimer Estimates Worst Possible**—Like other management representatives, Mr. Fort challenged the estimates submitted by Murray W. Latimer, chairman of the Railroad Retirement Board, who was the principal witness in support of the bill. The A. A. R. vice-president cited what he appraised as Mr. Latimer's poor record as an estimater on the present retirement system. "I do not say," he went on, "that anyone could have done better than Mr. Latimer, but I do venture the opinion that no one could have done worse in those estimates.'"

Mr. Fort did not contend that collective bargaining would have produced an agreement, but he did insist that it would have served a good purpose in bringing the existing retirement system's tax deficiency up for discussion, thus launching a movement to put the present house in order. Representative Wolverton, Republican of New Jersey, ranking minority member of the committee, said it had occurred to him that collective bargaining conferences might possibly result in an agreement to reduce the unemployment tax and to increase the retirement tax by something like the amount of such reduction. Mr. Fort was unable to say whether or not that could be accomplished, but it seemed to him "a desirable and sensible objective to work on."

**Are Employees Informed?** — Mr. Wolverton then went on to tell of a recent conference he had with representatives of some railroad employees who were disturbed about the bill. He found them under the impression that their union leaders had taken a different position at the hearing from that actually taken by such leaders. This raised in Mr. Wolverton's mind the thought "as to how far the men who are to be benefited or hurt actually know what has been proposed." He added that "evidently there is a great deal of misunderstanding among the men themselves about this proposed legislation."

Vice-President Miller of the Short Line Association endorsed the A. A. R. presentation and then proceeded on his own to call H. R. 1362 "one of the most pernicious bills ever introduced in Congress." To him it presented a picture of "sociological fanaticism carried to its most ridiculous conclusion," for it is "the embodiment and personification of a sociologist's dream—the reckless spending of other people's money." Noting that Britain's Beveridge Plan has been called a "cradle-to-the-grave" social security system, Mr. Miller said that H. R. 1362 does better than that; it has been referred to in the railroad industry as the "womb-to-the-tomb" plan, and he thinks that appellation "very appropriate."

**Miller Raps Latimer**—Mr. Miller was "mystified" by the appearance of Mr. Latimer "as a special pleader for the proponents of this legislation." He recalled that Lester P. Schoene, counsel for R. L. E. A., had expressed gratitude to Mr. Latimer. "He should," Mr. Miller went on. "Mr. Latimer, a partisan, magnanimously agreed to act for the proponents of this legislation while on the government payroll, with the railroads paying two-thirds of his salary, but he could not discuss the subject with other representatives of employees and with the railroads." Mr. Miller also paid his respects to Mr. Latimer as an estimater as follows: "Every time he has presented estimates that cost employees money, he undershoots the mark. When he has estimated on a proposal to take money from the railroads, he has overshot the mark."

The Short Line Association has "no confidence in the present administration" of the retirement and unemployment acts, nor in "the spending of our money" by the Retirement Board, Mr. Miller said. He found "some evidence" of President Roosevelt's "dissatisfaction with the administration of the affairs of this board" in the President's failure to reappoint either the railroad or the labor member when their terms expired in 1943 and 1944, respectively. Before acting on the bill, Mr. Miller suggested that the committee should ask the Bureau of the Budget for its views with respect to the efficiency of the board's administration of the present law.

In this connection Mr. Miller said that the bill, a "good example of administrative absolutism," proposes to give the board "unlimited authority" with respect to findings of fact, and to so restrict judicial review as to make the found facts final. In closing he asked the committee to take no action until after a report is made under the pending resolution (Senate Concurrent Resolution 3) sponsored by Senator Vandenberg, Republican of Michigan, for an investigation of the social security system.

## Head-on Collision of Freights Brings Show Cause Order

The Interstate Commerce Commission's findings that head-on collisions of freight trains recently on two railroads—the Chicago, Rock Island & Pacific and the Spokane, Portland & Seattle—were caused by failure to obey train orders in territory where an "adequate" block system was not in use have been followed by service on those roads of rules to show cause why they should not be required to install an "adequate block signal system" in the territory involved. Such orders would be complied

with, it was indicated, by the installation either of an automatic block signal system meeting commission standards or of a manual block system conforming to conditions prescribed in the orders.

The accident on the Rock Island occurred on January 20 at Flagler, Colo., on a single track section of the road's main line from Omaha, Neb., to Colorado Springs, Colo., where train operation was by timetable and train orders, with a manual block system for following movements only. The corresponding show cause order, which, like the reports of the investigations of the accidents, was by Commissioner Patterson, applied to the Western division main line from Albright, Neb., (at the outskirts of Omaha) to Colorado Springs, about 564 miles. During the 30 days prior to the accident, the average daily movement in the vicinity of Flagler was 12.9 trains.

Two employees were killed and 5 were injured in the collision, which occurred in a snowstorm at about 1:27 a. m. Both trains concerned had received copies of a train order giving westbound Extra 2701 right of track to Flagler, where it was directed to hold the main track until eastbound No. 92 cleared it by taking the siding at that point. The train order signal at Flagler displayed stop. Extra 2701 arrived at Flagler about 1:10 a. m., and stopped with the engine about 3,217 ft. east of the west siding switch. The headlight was lighted brightly, and the switchstand lamp was lighted and displaying green.

No. 92 was made up of two engines, 41 cars, and caboose, with the brakes in charge of the engineer of the first engine. The view ahead from the right side of these engines was obscured by trailing smoke and steam, and the engineers were depending on the firemen to maintain a lookout. This train was moving about 40 m. p. h. on tangent track when it passed the station one-mile sign located 5,120 ft. west of the west siding switch. Here the engineer sounded the meeting point signal and made a 10 or 20 lb. brake reduction, which was not released. The train proceeded to a point about 900 ft. west of the point of the accident, when the engineer observed the headlight of the opposing train. He then moved the brake valve to emergency, but the train's speed was about 15 m. p. h. when it struck the standing westbound train.

The fireman of the first engine said he called a warning to the engineer after the train passed the west siding switch, but he took no further action to stop the train. The members of the crew in the caboose were aware that the train had passed the switch, but took no action to stop it because they thought the train order signal at the station was visible to employees on the engines, and that it had authorized them to proceed on the main track.

Two accidents of somewhat similar nature preceded the service of the show cause order on the Spokane, Portland & Seattle, both of them being on the single-track Oregon Trunk line from Wishram, Wash., to Bend, Ore., where trains were operated by timetable and train orders, there being no block system in use. One of these was a rear-end collision between two freights at Metolius, Ore., on January 18, 1942. Following investigation, the commission recommended that an "adequate" block system be established on this line. The second accident, a head-on collision between two freight trains, occurred February 1, 1943, near Oakbrook, Ore., a station some 70 miles east (by timetable direction) of Metolius.

In the Oakbrook accident, two employees were killed and six were injured. It occurred in a snowstorm at 10:50 a. m. on a 3 deg.-15 min. curve in territory where there was considerable curvature of as much as 6 deg. During the 30 days prior to this accident, the average daily movement in its locality was 10.03 trains. The crew of each train involved—westbound Extra 507, with 84 cars, and eastbound Extra 2030, with 59 cars—held copies of a train order establishing Oakbrook as a meeting point and instructing Extra 2030 to take siding there. With such instructions, the rules required Extra 507 to stop clear of the west siding switch unless the opposing train was in the clear on the siding.

When Extra 507 was about 1 mile east of the west siding switch the fireman and front brakeman warned the engineer, and he acknowledged the warning but no action was taken to stop the train clear of the switch. When it was in the vicinity of the switch, the fireman saw the opposing train approaching, and he again called a warning, but the brakes had not been applied when he jumped to escape the collision. As the engineer was killed, it could not be determined why he failed to comply with the rules and train order. The conductor, in the caboose, was unable to tell, because of track curvature, what the situation was at the front of the train in time to avert the accident, although he did open the conductor's valve before it took place.

The eastbound train was proceeding prepared to take the siding when the opposing train was observed a short distance ahead. The engineer immediately moved the brake valve to emergency, but the collision occurred before the brakes became effective, at a point about 700 ft. west of the west siding switch. This train was then moving about 10 m. p. h., while westbound Extra 507 was moving about 30 m. p. h. Both engines and 25 cars were derailed and damaged.

In its reports on both the Oakbrook and the Flagler accidents, the commission concluded with the comment that, "if an adequate block system had been in use" on the line involved, opposing trains would not have been permitted to occupy the same block simultaneously, and the accidents "would not have occurred." The show cause order served on the Rock Island was made returnable May 1. The one served on the S. P. & S., which applied to the Oregon Trunk line from Wishram to Bend, about 151 miles, was made returnable May 15. Each order provided that, if a manual block system should be established, it should require that a passenger train will not be admitted to a block occupied by another train, except under flag protection; that no train will be admitted to a block occupied by a passenger train or an opposing train, except under flag protection; and that a train other than a passenger train will be permitted to follow another non-passenger train only when authorized by train order, signal or prescribed form, and then it must move prepared to stop short of a train or obstruction.

## New N. M. B. Mediator

Earl L. Smith, formerly employed by the Pacific Electric, has been appointed to the National Mediation Board's staff of mediators.

## Senate Group to Investigate Transport of Farm Products

The Senate on March 19 adopted Senate Resolution 92, authorizing its committee on agriculture and forestry to investigate the "production, transportation, distribution, exportation, utilization, and consumption" of food products. As noted in the *Railway Age* of March 3, page 430, the House recently authorized its committee on agriculture to make a similar investigation.

## Senate Passes Loco. Bureau's Bigger Staff and Pay Bill

The Senate on March 15 passed and sent to the House the bill sponsored by Chairman Wheeler of the Senate committee on interstate commerce to adjust salaries in the Bureau of Locomotive Inspection and to provide for the appointment of five additional inspectors. The bill is S. 46.

It would increase the salary of the director of locomotive inspection from $7,500 per year to $8,000. Also, it would raise assistant directors from $6,000 to $7,000, and inspectors from $4,000 to $4,600.

## Club Meetings

S. E. Back, smoke inspector of the Pennsylvania's Philadelphia division, will talk on "The Evolution of the Railroad Signals" at the March 28, 7:45 p. m. meeting of Railroad Enthusiasts, Inc., in Room 5928, Grand Central terminal, New York. In addition, there will be shown the Norfolk & Western colored movie of the building of its No. 600 Class A steam locomotives in the Roanoke shops, and in road operation.

The Car Foremen's Association of Omaha, Council Bluffs and South Omaha Interchange will meet at 1:30 p.m., April 12, in the Chicago Great Western freight house at Council Bluffs, Ia.

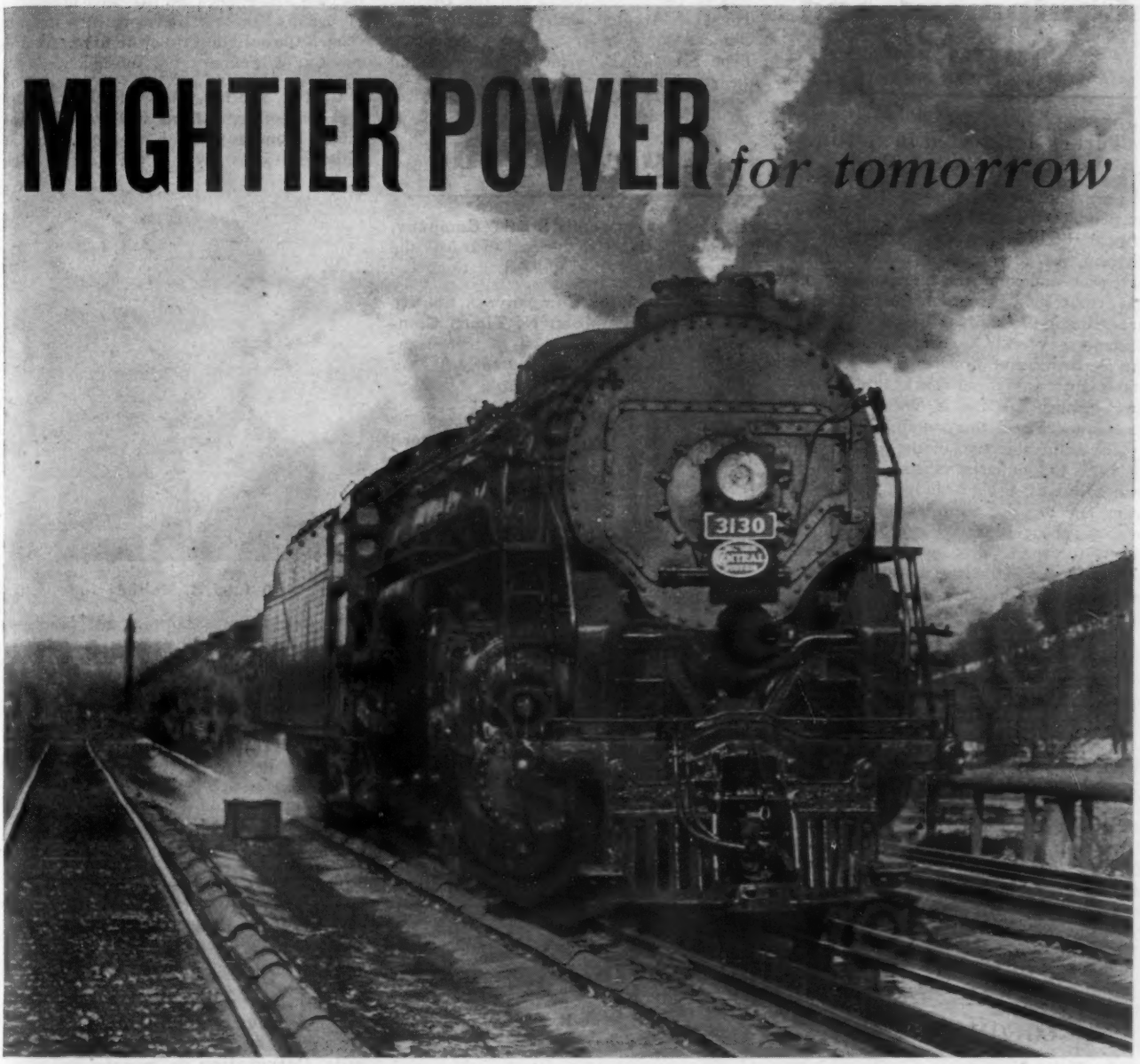
## 1,050 Mexicans Allotted B. & O. and N. Y. C.

Under recent arrangements between the Mexican government and the War Manpower Commission, the Baltimore & Ohio has been allotted 850 Mexicans for track maintenance at various points along its lines. At the same time, the New York Central received 200.

One-half of the group allotted the B. & O. will be placed in track crews on its Central region, working on the tracks of the Buffalo, N. Y., and Akron, O., divisions, which have been most affected by the recent heavy snows. Following expiration of their contracts of last spring, 55 per cent of the Mexicans renewed their contracts with the B. & O.


*News Department continued on next left-hand page*

# MIGHTIER POWER *for tomorrow*




AMONG the many improvements in railroad transportation in recent years, unquestionably the most outstanding is the greatly increased speed in the movement of heavy freight.

This has been made possible through greatly increased efficiency in motive power, as is exemplified in the operation of Lima Locomotives.

Fleets of these locomotives, now playing a vital role in wartime service, will be ready to meet tomorrow's demands to haul heavier trains, at higher speeds, and at lower costs.

LIMA LOCOMOTIVE WORKS, LIMA LOCOMOTIVE WORKS INCORPORATED INCORPORATED, LIMA, OHIO

# Equipment and Supplies

## Turkey Interested in Getting Rail Equipment Here

The Turkish government "has shown keen interest in obtaining from this country part of the equipment necessary to implement the 20-year program of railroad extension and improvement upon which it has embarked," according to an article appearing in the March 17 issue of "Foreign Commerce Weekly," official publication of the Department of Commerce. The article states that an official Turkish delegation now visiting England is due to arrive in the United States this month.

The main objective of the visit, it continues, is to familiarize officials with American railroads, bridges and railway equipment, and to place an order for equipment totaling about $5,000,000. These orders, chiefly for spare parts, would also include locomotives, freight cars, electrical equipment, cranes, dredges, excavators, rails, motor trucks and buses.

The article outlines Turkey's plans for the construction of 3,106 miles of railroad to supplement the 4,350 miles already in operation. The long-range program includes rail extensions to the frontiers of Iran and Irak and to ports on the Black Sea, the Aegean Sea and the Mediterranean. It is also stated that the government plans to use heavier equipment and proposes to increase the axle loads from the present 16 to 20 tons to approximately 25 tons. Efforts also are planned to obtain American railroad experts for service on the Turkish railroads after the war. Germany, Sweden and England have supplied most of the traction equipment and rolling stock for Turkey in past years.

### LOCOMOTIVES

The PERE MARQUETTE has ordered ten 1,000-hp. Diesel-electric switching locomotives from the Electro-Motive division of the General Motors Corporation.

### FREIGHT CARS

The CLINCHFIELD has placed an order for 1,000 50-ton steel twin hopper cars to be built in the Huntington, W. Va., plant of the American Car & Foundry Co.

The ALTON has received authorization from Federal Judge John B. Barnes to purchase from the Pullman-Standard Car Manufacturing Company 500 new, all-steel boxcars at a total cost of $1,675,000.

### SIGNALING

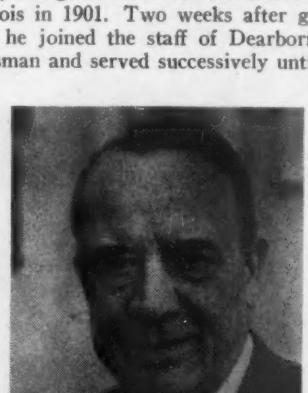
The BALTIMORE & OHIO has ordered a six-lever table interlocker from the General Railway Signal Company for installation at Washington Court House, Ohio. The six levers will control six signals and three switch lever locks at crossings of the Pennsylvania and the Detroit, Toledo & Ironton with the Baltimore & Ohio. Also on order are Type U signals, Type SA signals, welded steel cases and the required Type K relays.

# Supply Trade

The **Copperweld Steel Company**, Glassport, Pa., has been awarded the Army-Navy "E" for the fourth time.

The **Mall Tool Company** of Chicago has appointed the **John N. Thorp Company** of New York as eastern representative for the distribution and sale of Mall railway equipment.

**George R. Carr**, whose election as chairman of the board of the **Dearborn Chemical Company**, Chicago, was reported in the *Railway Age* of March 3, was born at Argenta, Ill., on January 23, 1877, and graduated from the University of Illinois in 1901. Two weeks after graduation he joined the staff of Dearborn as a salesman and served successively until 1922



George R. Carr

as assistant general manager and general manager. In 1922 he was elected vice-president and general manager, which position he held until February, 1944, when he was elected chairman of the executive committee, the position he held at the time of his new promotion.

**Arthur C. Omberg**, formerly assistant chief of the operational research branch of the U. S. Army Signal Corps, has been appointed chief research engineer of the Bendix Radio division of the **Bendix Aviation Corporation. Dr. Harold Goldberg**, formerly senior engineer with the Stromberg-Carlson Company, has been appointed as a research engineer of the Bendix Radio staff. **W. L. Webb** is the division's director of engineering.

**George Ericson** has been appointed head of the patent department of the **American Car & Foundry Co.** Mr. Ericson studied engineering at George Washington University and was graduated from Washington College of Law in 1928. He was employed as a patent examiner in the United States Patent Office from 1924 to 1928, since when he has been in charge of patents and new developments for the Carter Carburetor Corporation, an American Car & Foundry Co. subsidiary.

**Carl R. Moline**, whose election to vice-president of the **Allied Railway Equipment Company**, with headquarters at Chicago, was reported in the *Railway Age*

Carl R. Moline

of March 17, was born at Ft. Madison, Iowa, on April 23, 1910, and is a graduate of the University of Iowa. He began his career in 1937 when he became a design engineer of the Goss Printing Press Company at Chicago, and in 1939 he went with the Ajax Hand Brake Company. In September, 1940, Mr. Moline resigned to become associated with Allied, and on January 1, 1942, he was promoted to chief engineer, a title he will retain in addition to his vice-presidency.

The **Briggs Clarifier Company**, Washington, D. C., has appointed **LaGrave & Co.**, of Mobile, Ala., to handle the distribution of Briggs products in central and southern Mississippi, in southern Alabama, and in northwestern Florida.

The appointment of veterans' advisers at all plants and offices of the **Johns-Manville Corporation** to provide individual attention to all returning war veterans, in the administration of a comprehensive program for their re-employment, has been announced in an article in the March 19 issue of J-M News Pictorial, a semi-monthly magazine distributed to employees. An important part of the plan provides for determining whether the veteran has acquired additional training, skill or experience qualifying him for a better job than he formerly held or whether he wishes to return to his old job.

Net income of the **General Railway Signal Company** for the year ended December 31, 1944, amounted to $944,476. Net earnings after all charges and dividends on the preferred stock equaled $2.53 per common share compared with $2.73 in the previous year after adjustment for final 1943 renegotiation settlement. In his annual report, Paul Renshaw, president, stated that orders for signaling for the year were sufficient for capacity operations under existing man-power limitations and that unfilled orders on January 1 should insure maximum output under present conditions



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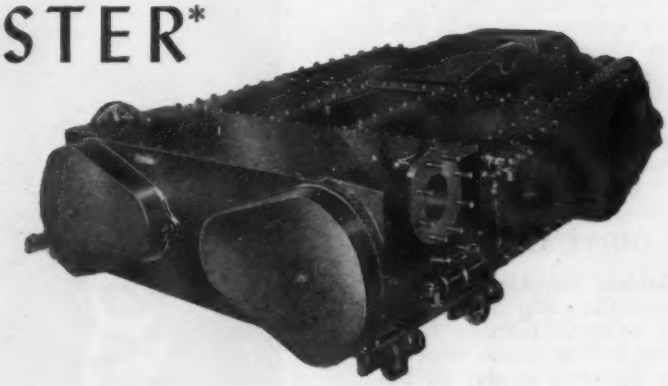
# 20 READING locomotives

Reading Lines

## . . . being equipped with the new TYPE "E" FRANKLIN BOOSTER*



TO HELP speed heavy traffic on the Reading Railway System, the new Type E Franklin Booster is being installed on twenty locomotives.

Based on experience gained from thousands of Franklin Boosters in service all over the country, the Type E has been expressly designed to meet the increasingly exacting requirements of current steam locomotive operation.

The Type E saves starting time by making possible a quicker pick-up; it enables the locomotive to accelerate rapidly to road speed and maintain speed on grades.

*Trade Mark Reg. U. S. Pat. Off.

**FRANKLIN RAILWAY SUPPLY COMPANY, INC.**

NEW YORK • CHICAGO

*In Canada:* FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

for the greater part of the current year. The volume of ordnance work continued in substantial volume and increased schedules now call for doubling last year's production, but difficulty is being experienced in securing sufficient man-power and materials. The manufacture of air corps materiel continued to expand throughout the year, and another plant was acquired under lease from the Defense Plant Corporation. Deliveries are scheduled to the end of this year.

Net sale billed in 1944 of the **Westinghouse Electric & Manufacturing Co.** amounted to $835,737,004, an increase of $26,394,287 or 18 per cent over 1943, and an all-time high, according to the company's annual report. Net income for the year was $26,019,097, compared with $21,401,568 in 1943, an increase of 22 per cent. "The company is in excellent financial condition," the report declared. "On December 31, 1944, current assets amounted to $381,600,567 and current liabilities were $185,287,348." The report listed the company's development of the first all-American jet propulsion engine; the building of 34 power trains, each a complete power plant on wheels, designed to rush electricity to liberated and devastated war areas; the gunsight lamp which enables American gunners to aim directly into the rays of the sun; the absolute altimeter which tells airplane pilots the exact distance to the ground at any given point; the magnetic torquemeter which enables pilots to accurately determine the power output of their engines; the development of the geared turbines for locomotives; the new high-speed X-ray which photographs bullets as they pierce armor, and the development of synthetic resins and plastics.

## OBITUARY

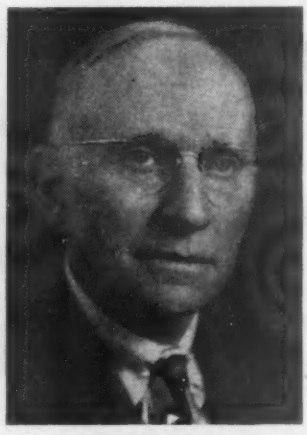
**G. A. Bahler,** retired general traffic manager of the Caterpillar Tractor Company, whose death on February 16 was reported in the *Railway Age* of March 17, was born in California on May 18, 1886, and entered railway service in 1903 as a ticket agent of the Southern Pacific at

**G. A. Bahler**

Benicia, Cal. From 1906 to 1913 he served as station agent of that road at various points in California, Arizona, New Mexico and Mexico, and in October of the latter year he formed the traffic brokerage firm of Bishop & Bahler at San Francisco, Cal. Mr. Bahler joined the Caterpillar organization as general traffic manager, with headquarters at San Leandro, Cal., and five years later he was transferred to Peoria, Ill., where he was placed in charge of preparations for the company's removal from San Leandro to Peoria. He remained in the latter city until August, 1943, when he retired because of ill health. Mr. Bahler was a past president of the Peoria Transportation Club.

**Robert C. McCloy,** southeastern sales manager of the Taylor-Wharton Iron & Steel Co., died March 8. He was 74 years of age. Mr. McCloy was in charge of the company's Philadelphia, Pa., office and maintained his headquarters there. He had been associated with Taylor-Wharton in various sales capacities for 58 years.

**Garth Griffith Gilpin,** vice-president in charge of engineering of the Standard Railway Equipment Manufacturing Company, Chicago, whose death on February 25 was announced in the *Railway Age* of March 3, was born at Portland, Ind., on October 3, 1882, and was a graduate of Purdue University with a degree in mechanical engineering. Before entering railroad service he spent two years in mining engineering, leaving this field to become



**Garth G. Gilpin**

a draftsman with the Wisconsin Central and was later connected with the Pennsylvania in the same capacity. In 1910 Mr. Gilpin became chief draftsman for the Chicago, Burlington & Quincy, remaining until 1918, at which time he resigned to join the staff of the W. H. Miner Company as a sales engineer, later becoming associated with the Standard Railway Equipment Manufacturing Company as chief engineer, which position he held until 1937, at which time he was made vice-president in charge of engineering. Mr. Gilpin invented many devices for railway cars and was noted for his executive ability as well as keen mechanical foresight. His death occurred while vacationing at the Remuda Ranch, Wickenburg, Arizona.

**Charles Roy Beall,** chief engineer of the Union Switch & Signal Co., died February 24.

**George T. Horton,** president of the Chicago Bridge & Iron Co., with headquarters at Chicago, died in a hospital in that city on March 19 from injuries suffered in an automobile accident.

# Construction

BALTIMORE & OHIO.—This railroad has awarded a contract for the construction of an industrial track at Charlestown, Ind., at estimated cost of $26,000 to the S. J Groves & Sons Co., Minneapolis, Minn.

PENNSYLVANIA.—This railroad is reported to have awarded a contract for the construction of a new turntable foundation at Canton, Ohio, at estimated cost of $50,000, to the Trimble Company of Pittsburgh, Pa.

SEABOARD AIR LINE.—This railroad has authorized and awarded contracts for the building of yard tracks at Savannah, Ga., at estimated cost of $23,000, and for the remodeling and extension of its yard office at Hamlet, N. C., at estimated cost of $22,000.

# Financial

ARKANSAS.—*R. F. C. Loan.*—Division 4 of the Interstate Commerce Commission, with Commissioner Mahaffie dissenting, has approved a loan of $36,226 by the Reconstruction Finance Corporation to this road for the reconstruction of its track. This approval is in lieu of a conditional approval of a $63,039 loan (reported in *Railway Age* of October 21, 1944, page 638), to which the road objected because it required a deposit of collateral by W. R. Alsobrook, its owner. The smaller loan was approved without this condition, but it required the owner to guarantee payment. Commissioner Mahaffie took the position that "there is no basis for a finding that this applicant from its own earnings can reasonably be expected to repay the loan sought, and no such finding is made. . . . I would require collateral as was done in the former report."

BALTIMORE & OHIO.—*Financial Adjustment.*—With Commissioner Mahaffie dissenting in part, the Interstate Commerce Commission has approved a plan for the adjustment of this company's outstanding indebtedness under the provisions of chapter 15 of the Bankruptcy Act, enabling the road to solicit the consent of holders of the securities involved to its execution. The plan contemplates no decrease in the principal amount of securities outstanding or pledged, or in the total amount of interest payments, but does provide for the extension of maturities and a long-range program of reduction in debt and in fixed charges, with provision for financing future improvements.

With the approval of the commission and the federal court, this road arranged a readjustment of its financial structure effective in 1939, which was designed to be operative for about 8 years. All the requirements of that plan have been met, the commission's report notes, and since it became effective the company has retired and will retire more than $100,000,000 of debt, while reducing its annual interest charges and guaranteed dividends by $5,548,187. Nevertheless it was unable to ex-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tend or refinance certain notes held by the public and the Reconstruction Finance Corporation, due in 1944, in the face of substantial early maturities of other securities. The R. F. C. debt was represented by $13,490,000 of unpaid secured notes due August 1, 1944, and $71,073,276 due November 8. Near future maturities included $144,748,850 of first mortgage bonds, maturing July 1, 1948, $37,285,500 of Southwestern division bonds maturing July 1, 1950, and $36,798,000 of Pittsburgh, Lake Erie & West Virginia bonds maturing November 1, 1951.

In anticipation of the consummation of a further readjustment of its debt, the company has paid the matured secured notes held by the public, and has arranged with the R. F. C. for a consolidation of its debt to that agency.

The new plan provides for the issue of $84,563,276 of collateral trust 4 per cent bonds, due in 1965, to be sold to the R. F. C. in lieu of the matured loans; for extension of the maturity date of the first mortgage bonds from 1948 to 1975; and for extension of the maturity date of the Southwestern division bonds and the P. L. E. & W. V. bonds from 1950 and 1951, respectively, to 1980. It also provides for extension of the maturity date of $10,028,700 of Toledo-Cincinnati division first lien and refunding mortgage 4 per cent bonds from 1959 to 1985, and of $61,906,000 of 4½ per cent convertible bonds from 1960 to 2010.

The plan further provides that, in extending the maturity date of the first mortgage bonds, secured interest will be payable on the whole issue at 4 per cent, while an additional 1 per cent will be payable as cumulative contingent interest on the $67,826,500 of series B bonds. All the interest on the convertible bonds, and 1½ per cent on the Southwestern division bonds, is also to be contingent and fully cumulative, as is 60 per cent of secured interest on $122,639,000 of refunding and general mortgage bonds outstanding and $102,388,750 thereof pledged. This interest, plus an additional 20 per cent portion on the refunding and general mortgage bonds, was made contingent under the readjustment effective in 1939, but would become a fixed charge in the next two years.

The new plan also provides for a capital fund and for substantial sinking fund payments ahead of contingent interest, and for the issue of new bonds under the first lien mortgages to finance 75 per cent of the cost of improvements. While the road's fixed interest charges would be $25,265,049 annually upon the termination of the earlier readjustment, they will be $17,567,299 annually under the new readjustment plan, on the basis of debt outstanding August 31, 1944. The commission found that the road's "earning capacity as shown by its history, with due consideration to the periods of low income which have occurred and which may be expected from time to time in the future, appears to be adequate to support its present financial structure." During the entire period from 1921 to 1944 the road's earnings were sufficient to meet each year the fixed charges made effective by the adjustment, it pointed out. "It is anticipated that by reducing the outstanding debt and increasing the investment securing it, it may be possible at some future date to refinance some of the outstanding issues on more favorable terms."

Commissioner Mahaffie observed that the previous adjustment plan "was presented on the theory that the applicant's difficulties were only temporary." That plan, however, he said, "despite unprecedented earnings, has failed . . . failed because of the timidity of its framers. They contented themselves with nibbling at the troubles besetting the property when a drastic operation was required. Probably this temporizing was induced largely by the attitude of the security holders who were unwilling, or perhaps constitutionally unable, to face realities." The new plan greatly improves on the first, in his opinion, because it provides a 20-year "breathing spell" instead of 6 or 8 years. That will probably suffice, said Mr. Mahaffie, but he would prefer 40 years instead, in which the sinking funds could effect a reduction in principal before the company is confronted with a large maturity.

CHICAGO & EASTERN ILLINOIS.—*Seek to Retire Bond Issue.*—This road has announced that it will shortly ask bids on a bond issue to retire its $10,059,000 indebtedness to the Reconstruction Finance Corporation.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—*Reorganization Managers.*—Federal Judge Michael L. Igoe has appointed five reorganization managers for this road as follows: Elmer Rich, president of the Simoniz Company, on behalf of the group of institutional investors; William H. Mitchell, a partner of Mitchell, Hutchins & Co., brokers, for the Mutual Savings Bank group; William C. Cummings, president of the Drovers National Bank, jointly for both preceding groups; Henry F. Tenney, Chicago attorney, for the 50-year 5 per cent bonds due in 1975, and James M. Barker, a director of Sears, Roebuck & Co., for the convertible adjustment mortgage bondholders.

DENVER & SALT LAKE.—*Interest Payment.*—The Denver & Salt Lake has announced that it will make a 2¾ per cent interest payment on April 1 on its income mortgage bonds for 1944.

ERIE.—*Annual Report.*—The 1944 annual statement of this road shows a net income, after interest and other charges, of $8,223,369, as compared with $10,280,265 in 1943. Selected items from the income statement follow:

| | 1944 | Increase or Decrease Compared With 1943 |
|---|---|---|
| Average Mileage Operated | 2,243 | −1.0 |
| RAILWAY OPERATING REVENUES | $156,720,899 | −$1,172,324 |
| Maintenance of way | 16,307,394 | +937,881 |
| Maintenance of equipment | 26,752,747 | −388,659 |
| Transportation | 57,894,843 | +3,721,417 |
| Other operating expenses | 8,167,135 | +723,706 |
| TOTAL OPERATING EXPENSES | 109,122,118 | 4,994,346 |
| Operating ratio | 69.63 | +3.68 |
| NET REVENUE FROM OPERATIONS | 47,598,781 | −6,166,670 |
| Railway tax accruals | 24,015,419 | −3,030,545 |
| RAILWAY OPERATING INCOME | 23,583,362 | −3,136,125 |
| Equipment rents—Net Dr. | 7,687,619 | −544,748 |
| Joint facility rents—Net Cr. | 428,590 | +197,515 |
| NET RAILWAY OPERATING INCOME | 16,324,332 | −3,483,359 |
| Total other income | 1,892,084 | +905,252 |
| TOTAL INCOME | 18,216,416 | −2,578,107 |
| Total miscellaneous deductions | 322,295 | +18,611 |
| Rent for leased roads | 360,362 | −1,855 |
| Interest on funded debt—fixed interest | 5,464,484 | −144,064 |
| TOTAL FIXED CHARGES | 5,978,963 | −146,520 |
| Total contingent charges | 3,691,788 | −393,301 |
| NET INCOME AFTER FIXED CHARGES AND OTHER DEDUCTIONS | 8,223,369 | −2,056,896 |
| Disposition of net income: | | |
| Income applied to sinking and other reserve funds | 563,212 | −.05 |
| | $7,660,157 | −$2,056,896 |

LOUISVILLE & NASHVILLE.—*Capital Stock Split.*—Division 4 of the Interstate Commerce Commission has authorized the exchange of 2,340,000 shares of this road's $50 par value capital stock for 1,170,000 shares outstanding of $100 par value stock. In noting the intention of the Atlantic Coast Line to sell 369,973 shares of the new L. & N. stock (which transaction was completed, as noted in *Railway Age* of March 17, page 527), the division pointed out that the Coast Line would retain about 35 per cent of the outstanding L. & N. stock, so that it would "still retain the ability to exercise sufficient control for the purposes of both companies."

MINNEAPOLIS & ST. LOUIS.—*Annual Report.*—Continued progress for the Minneapolis & St. Louis in 1944, evidenced by gains in all classes of traffic and further improvement of equipment, tracks and other properties, are cited in the railroad's first modernized annual report, illustrated with pictures of new locomotives, cars, tracks and trains. Total operating revenues increased $428,171 to a new all-time peak of $15,250,079 in 1944. Freight receipts were up from $13,885,189 to $14,207,826. Operating expenses rose $771,571 to $10,897,377, and tax accruals jumped $1,364,505 or 134.97 per cent to $2,375,511. As a result, net operating income declined from $3,478,717 in 1943 to $1,795,224, while net income after interest and all other charges decreased from $3,168,531 in 1943 to $1,675,459.

The report shows that the M. & St. L. in 1944 paid off its entire bonded debt, consisting of $2,015,000 of general mortgage bonds. The road's long-term debt on January 1 consisted only of $2,263,958 of equipment obligations, issued in payment for new locomotives and cars.

In 1944 the railroad acquired four Diesel road and switching locomotives of 1,000-hp. each; 500 new steel box cars and 150 flat cars. On order for 1945 are two large Diesel engines of 4,050-hp. each; five more 1,000-hp. Diesels, one of which has been delivered; ten light-weight aluminum-body box cars, one of which has arrived, and six stainless steel passenger coaches. Fifty-five miles of main track were laid with 100-lb. rail in 1944, replacing 85-lb. steel.

C. W. Wright of Minneapolis, Minn.,


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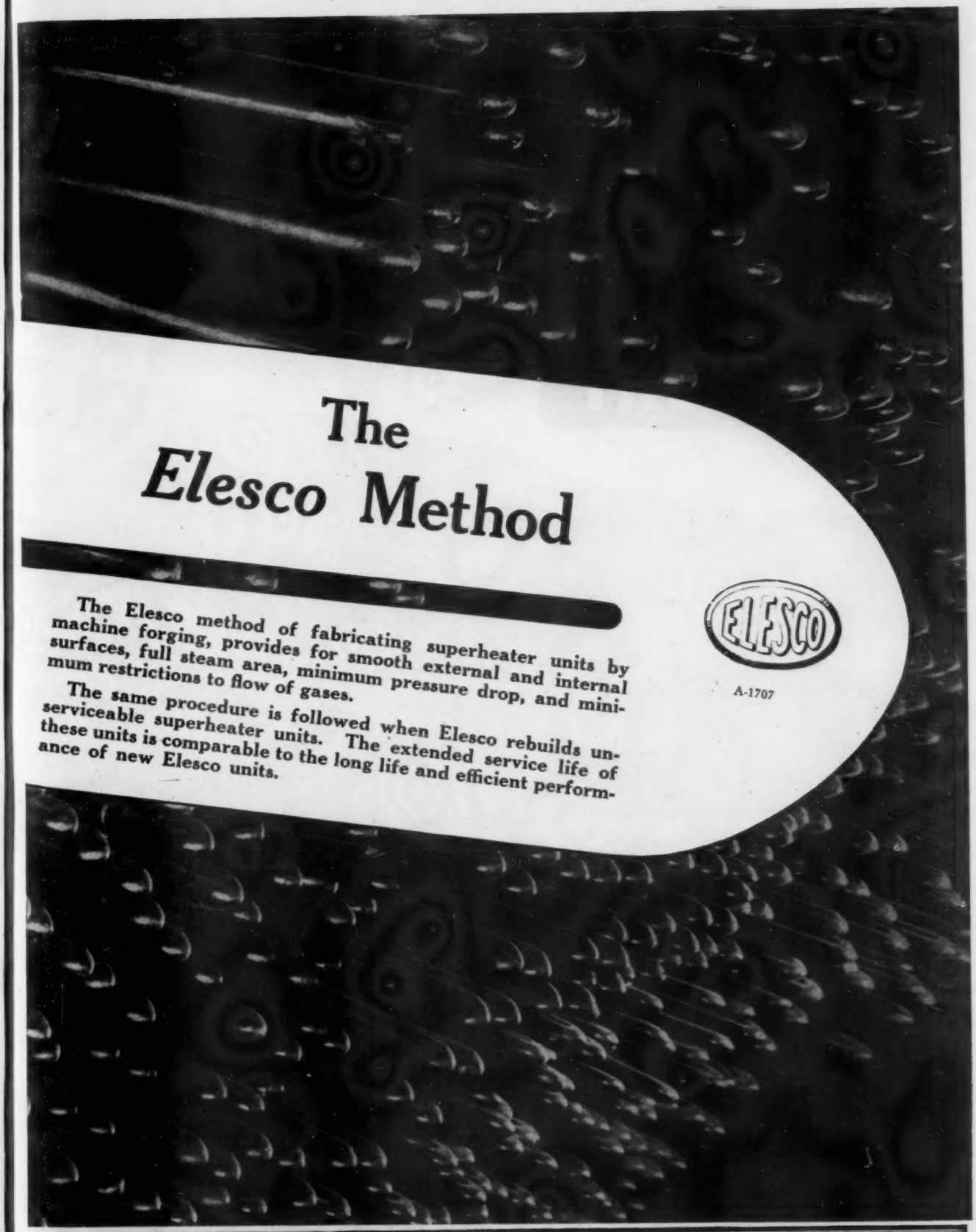


# The *Elesco* Method

**The Elesco method of fabricating superheater units by machine forging, provides for smooth external and internal surfaces, full steam area, minimum pressure drop, and minimum restrictions to flow of gases.**

**The same procedure is followed when Elesco rebuilds unserviceable superheater units. The extended service life of these units is comparable to the long life and efficient performance of new Elesco units.**

ELESCO

A-1707

# LOCOMOTIVES THAT ARE MAKING HISTORY


## Gentlemen, meet the new S-1A

PERHAPS you know this locomotive, already. It is of special interest to the entire railroad world.

Why? The answer lies in a problem that is of major importance to management men on practically every American road... *the problem of handling traffic without excessive locomotive investment.*

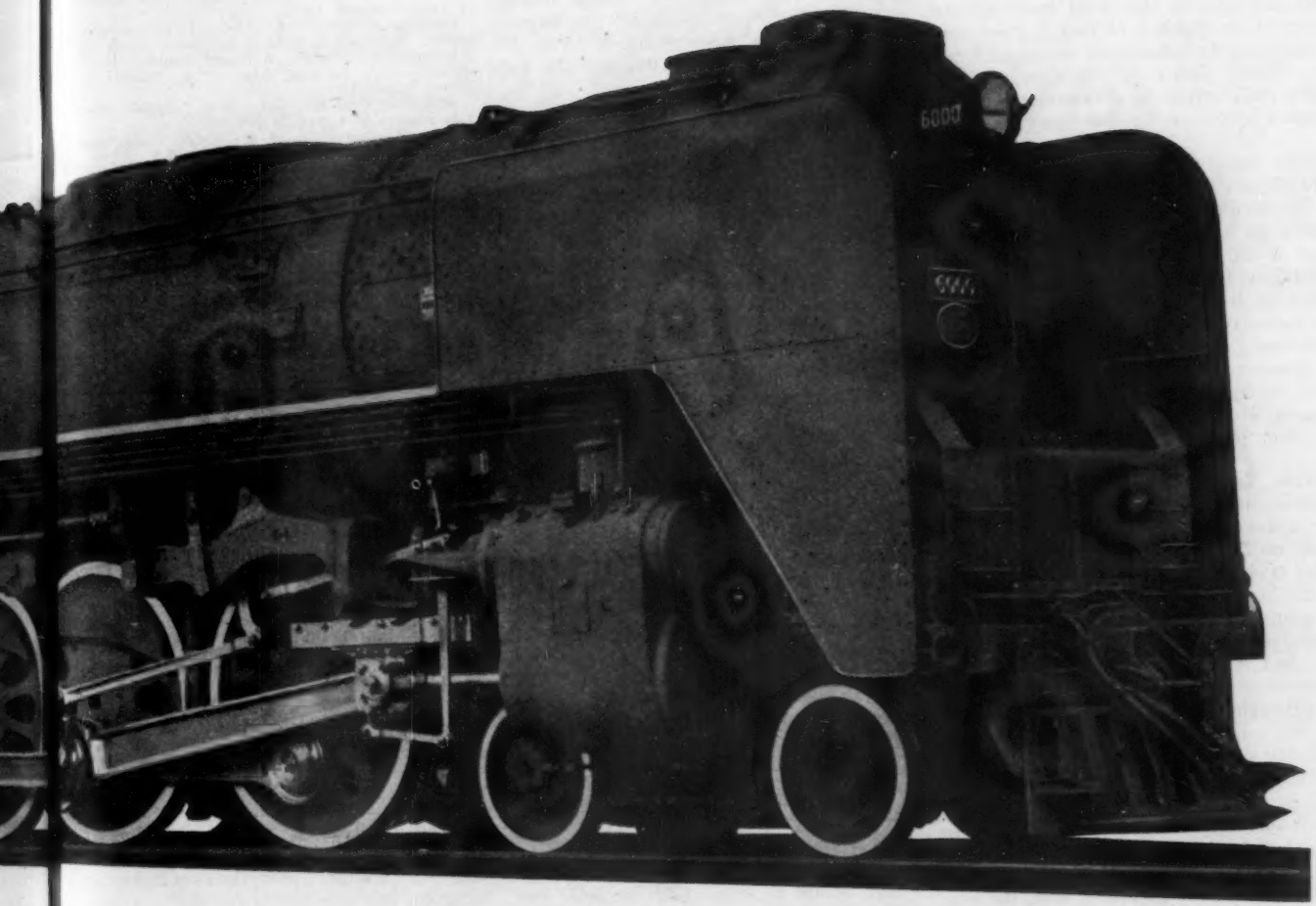
The logical answer to this problem is to provide an efficient *dual-purpose* locomotive—one that can be used effectively both for fast passenger and fast freight hauls.

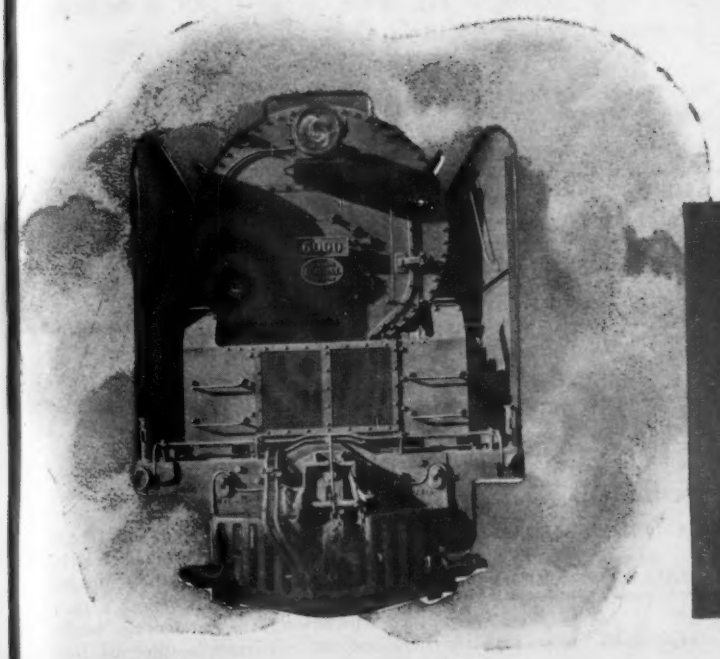
To meet this problem, American Locomotive Company, working with the New York Central System, has developed the locomotive shown above—"The Niagara"—which is designed to combine speed and power.

This locomotive is the latest example of an important development made possible by close cooperation between American Locomotive and The New York Central—a development that helps reduce investment, operation and maintenance costs by reducing the total number of locomotives a railroad needs in order to do its job.

• • •

**Locomotive designs developed by American Locomotive Company have been, are, and will continue to be powerful factors in American railroad-operating efficiency and economy.**




American Locomotive

NEW YORK

vice-president and general counsel of the M. & St. L., and J. J. O'Brien of New York, vice-president and secretary, were elected directors, to fill board vacancies caused by the resignation of J. E. Waid, New York, and the death of George B. Webster, of Minneapolis.

MISSOURI-KANSAS-TEXAS.—*Orders Payment on Adjustment Mortgage Bonds.*—The directors of this road have ordered payment on April 1 of two 2½ per cent coupons on its adjustment mortgage 5 per cent bonds, Series A, which is the first since 1937. After the disbursement unpaid accrued interest will amount to 45 per cent.

NEW YORK CENTRAL.—*Louisville & Jeffersonville Bridge Note.*—The Louisville & Jeffersonville Bridge & Railroad Co., controlled by the Cleveland, Cincinnati, Chicago & St. Louis, a New York Central subsidiary, through ownership of stock, has asked the Interstate Commerce Commission for authority to issue a $7,500,000 4 per cent promissory demand note to the Big Four in evidence of advances made by that company, or by the New York Central at its request, for the retirement of indebtedness or other purposes.

NEW YORK, CHICAGO & ST. LOUIS.—*Contemplates Further Refunding.*—Following a meeting of the board at Cleveland, Ohio, on March 21, John W. Davin, president of the New York, Chicago & St. Louis, revealed that the road is contemplating an offering of new bonds to refund its outstanding $59,875,000 of 4½ per cent refunding mortgage bonds due September 1, 1978.

Although plans for the offering are not yet completed, Mr. Davin said it will probably consist of $58,000,000 of 35-year bonds and it is expected that the issue will be ready for competitive bidding on April 26. He said the balance needed to refund the outstanding bonds would come from the road's treasury. As in the case of the presently outstanding 4½s, the new bonds would be issued under the road's refunding mortgage, which is a first and only mortgage on all of the company's lines, aggregating 1,687 miles. Also outstanding under this mortgage are the $42,000,000 of series D 3¾ per cent bonds which were awarded at competitive bidding last December 19.

Completion of the refinancing, which would be the third such operation under the debt simplification program announced by the board of directors in September 1944, would bring Nickel Plate's non-equipment debt down to $100,000,000, compared with $151,662,000 at the end of 1936. President Davin attributed this sharp reduction in debt to vigorous adherence to a policy of debt reduction inaugurated by the road's directors in 1937. He emphasized that annual interest charges, which totaled $7,500,000 at the start of 1937, have already been reduced to $4,650,000, and would be further reduced by the proposed refunding.

PERE MARQUETTE.—*Resumes Preferred Dividends.*—At a meeting of the board of directors of the Pere Marquette held in Cleveland, Ohio, on March 20, it was decided to declare a dividend on the prior preference stock of $1.25 per share, thus arresting the accumulation of unpaid dividends on this stock. The dividend will be payable May 1 to stock of record on April 5, 1945. Prior to this declaration, no dividends have been paid on this stock since 1937, when a dividend of $11.25 per share, requiring $1,260,000, was paid. Within a few months conditions were such that Pere Marquette, with no outside credit stating, had to go to its largest stockholder, the Chesapeake & Ohio, to borrow funds to meet its payrolls and for other purposes.

READING.—*Refinancing.*—This company has applied to the Interstate Commerce Commission for authority to issue $84,000,000 of first and refunding mortgage bonds, series D, in connection with a comprehensive refunding operation which includes the retirement of all its outstanding general and refunding mortgage bonds due in 1997, the improvement mortgage bonds due in 1947 and the remaining outstanding Reading-Jersey Central collateral trust bonds due in 1951. The principal amount of the outstanding securities to be retired is about $95,000,000. In addition to the proceeds of the new first and refunding issue, funds will be obtained by short-term bank loans not in excess of $6,000,000, and from the company treasury.

Two issues including in the refunding—$9,151,000 of Philadelphia & Reading 4 per cent improvement mortgage bonds due in 1947 and $826,000 of Shamokin, Sunbury & Lewisburg 5 per cent second mortgage bonds due in 1945—are not callable, but funds will be deposited to pay them at maturity. The general and refunding mortgage bonds to be retired are callable at 105. They include $59,345,700 of series A 4½s and $14,927,000 of series B 4½s.

UNION PACIFIC.—*Annual Report.*—The 1944 annual report of this road shows a net income, after interest and other fixed charges, of $41,929,914, as compared with a net income of $45,293,259 in 1943. Selected items from the income statement follow:

| | 1944 | Increase or Decrease Compared With 1943 |
|---|---|---|
| RAILWAY OPERATING REVENUES | $506,590,966 | +$26,316,032 |
| Maintenance of way and structures | 63,195,849 | −2,957,401 |
| Maintenanse ocf equipment | 85,426,030 | +3,385,061 |
| Transportation | 137,571,730 | +11,708,328 |
| Other operating expenses | 28,766,193 | +2,749,042 |
| TOTAL OPERATING EXPENSES | 314,959,802 | +14,885,030 |
| REVENUES OVER EXPENSES | 191,631,164 | +11,431,002 |
| Total Taxes | 141,806,203 | +15,743,058 |
| Equipment and joint facility rents—Net charge | 13,298,946 | +367,784 |
| NET INCOME FROM TRANSPORTATION OPERATIONS | 36,526,015 | −4,679,840 |
| Non-operating income | 20,401,418 | +1,525,387 |
| TOTAL INCOME | 56,927,433 | −3,154,453 |
| Interest on funded debt | 14,110,072 | +539,627 |
| Total fixed and other charges | 15,856,539 | +1,067,912 |
| TOTAL DEDUCTIONS FROM GROSS INCOME | | |
| NET INCOME | 41,929,914 | −3,363,345 |

## Average Prices Stocks and Bonds

| | March 20 | Last Week | Last Year |
|---|---|---|---|
| Average price of 20 representative railway stocks.. | 50.51 | 49.93 | 39.46 |
| Average price of 20 representative railway bonds.. | 96.17 | 95.69 | 87.26 |

## Dividends Declared

Akron, Canton & Youngstown.—5% preferred, $2.50, semi-annually, payable April 2 to holders of record March 15.

Carolina, Clinchfield & Ohio.—$1.25, quarterly, payable April 20 to holders of record April 10.

Kalamazoo, Allegheny & Grand Rapids.—$2.95, semi-annually, payable April 2 to holders of record March 15.

Mahoning Coal Railroad.—$6.26, payable April 2 to holders of record March 24.

Pere Marquette.—prior preferred, $1.25, payable May 1 to holders of record April 5.

Providence & Worcester.—$2.50, quarterly, payable April 2 to holders of record March 14.

Vermont & Massachusetts.—$3.00, semi-annually payable April 7 to holders of record March 22.

# Railway Officers

## EXECUTIVE

**Charles F. Duggan,** assistant general manager of the Illinois Central at Chicago, has been elected vice-president in charge of operation, with the same headquarters. **Vernon W. Foster,** general counsel, has been elected vice-president and general counsel, with headquarters as before at Chicago, and **Charles H. Mottier,** chief engineer at Chicago, has been elected vice-president and chief engineer, with the same headquarters.

## FINANCIAL, LEGAL AND ACCOUNTING

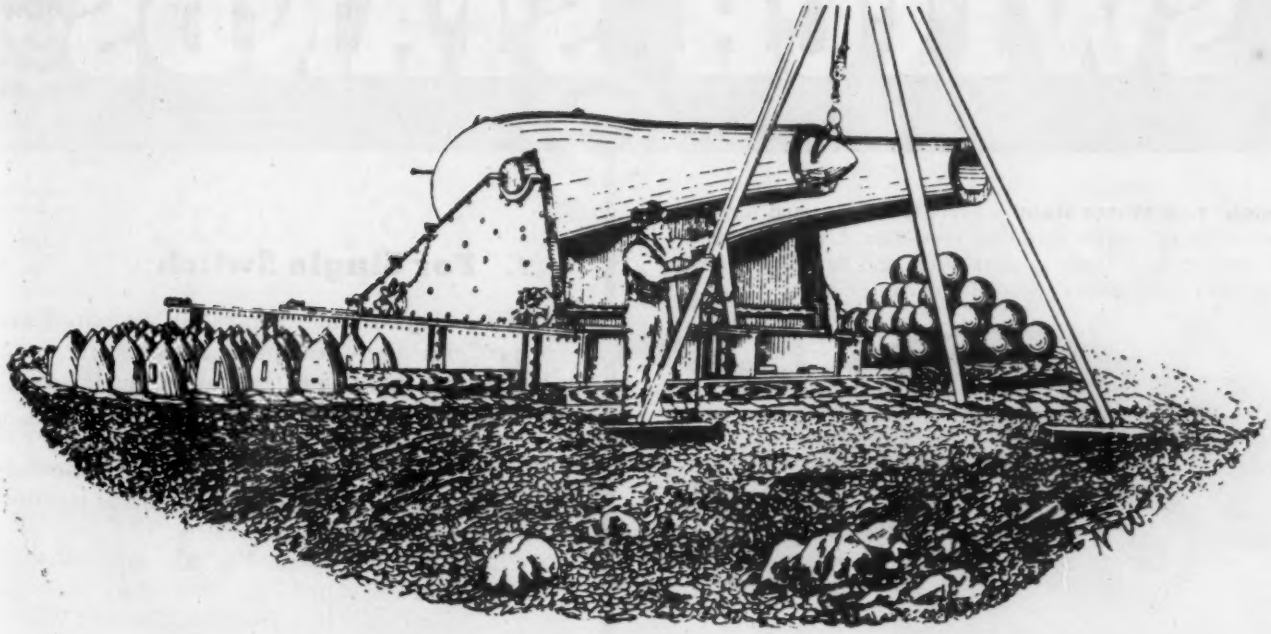
**Fred H. Jeffrey,** whose promotion to treasurer of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Chicago, was reported in the *Railway Age* of March 17, was born in Edinburgh, Scotland, on August 6, 1889. He entered railway service on July 1, 1904, in the ticket

**Fred H. Jeffrey**

auditor's office of the Chicago & Eastern Illinois, later becoming chief voucher clerk. On July 1, 1913, he went with the Chicago, Terre Haute & Southeastern (now a part of the Milwaukee), as a general bookkeeper, and was assistant auditor of that



*News Department continued on second left-hand page*



# SECRET WEAPON — 1873

"TERRIBLE AND IRRESISTIBLE," SAID THE Boston Daily Advertiser of these 15-inch guns at their testing on Boston Harbor's Nut Island, November 29, 1873, when these "monsters" helped to establish the superiority of rifling and rifle projectiles over smooth bore and spherical shot by penetrating 15 inches of wrought iron plates at a range of 150 feet!

Present at the test was William P. Hunt of the South Boston Iron Works, Hunt-Spiller predecessor and builder of the great guns. Significant then was the recognition of Air Furnace Gun Iron as the best material for exacting ordnance requirements. Today, these same traditional HSGI qualities of withstanding heat and wear make it superior for vital parts of modern locomotives.

**HSGI**
**Reg. U. S. Trade Mark**
Cylinder Bushings
Cylinder Packing Rings
Pistons or Piston Bull Rings
Valve Bushings
Valve Packing Rings
Valve Bull Rings
Crosshead Shoes
Hub Liners
Shoes and Wedges
Floating Rod Bushings

***Finished Parts***
Dunbar Sectional Type Packing
Duplex Sectional Type Packing
for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings, All Shapes
Light Weight Valves
Cylinder Liners and Pistons
for Diesel Service

**HUNT-SPILLER MFG. CORPORATION**
N. C. Raymond, *President* — E. J. Fuller, *Vice-Pres. & Gen. Mgr.*

*Office & Works*
383 Dorchester Ave. — South Boston 27, Mass.

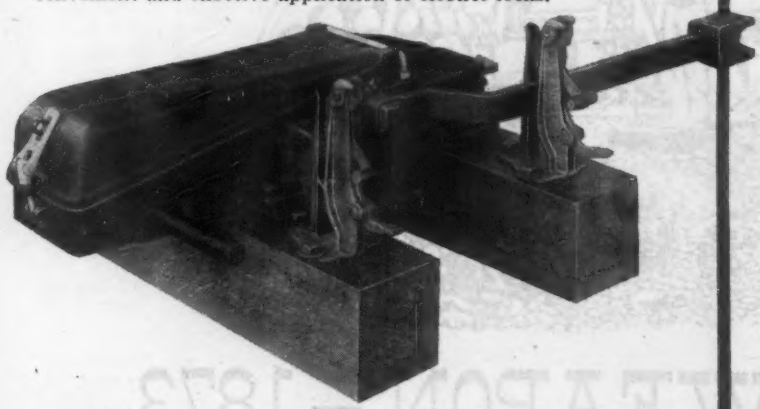
Canadian Representative: Joseph Robb & Co., Ltd., 5575 Cote St. Paul Rd., Montreal, P. Q.
Export Agent for Latin America:
International Rwy. Supply Co., 30 Church Street, New York, N. Y.

# HUNT-SPILLER GUN IRON

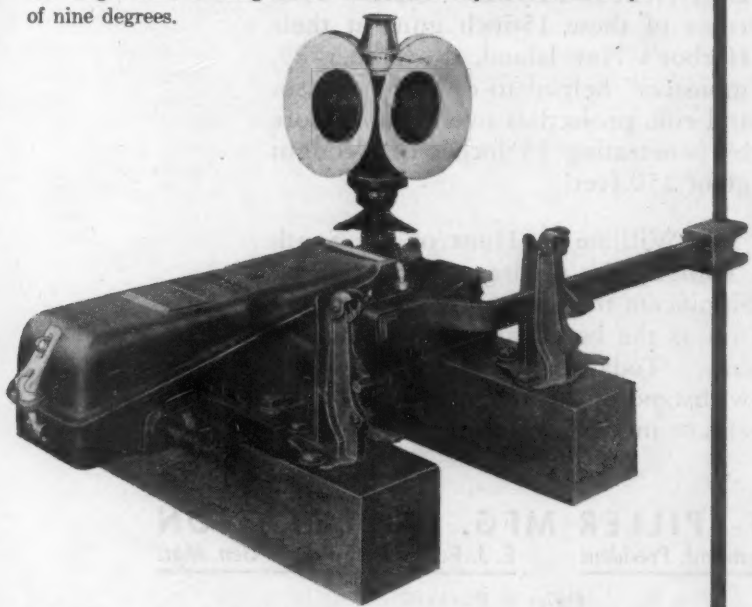
*Air Furnace*

# SWITCH STANDS

**"UNION" T-20 SWITCH STAND** is expertly designed and ruggedly constructed to provide maximum protection at non-interlocked switches. It is universal in application, and its design permits convenient and effective application of electric locks.



**"UNION" T-21 SWITCH STAND** is identical to the T-20 except that it is equipped with a target-drive arrangement. To permit proper alignment of target or switch lamp to suit curves, etc., the target staff is designed for rotational adjustment in steps of nine degrees.



The design of "Union" hand-operated Switch Stands permits convenient and effective application of electric locks.

## 1. For Single Switch

The "Union" hand-operated Switch Stand provides these essential features for safeguarding main-line train movements over a non-interlocked switch:

A standard lock rod which mechanically locks the switch in the normal position;

A self-contained circuit controller for signal control which checks that the switch is in correct position and locked;

A separate point-detector rod operating the same circuit controller for continuously checking that the points remain in proper position.

## 2. For Single Switch and Derail

Reversal of the switch moves the derail by means of mechanical linkage attached to the projecting end of the lock bar of the switch stand.

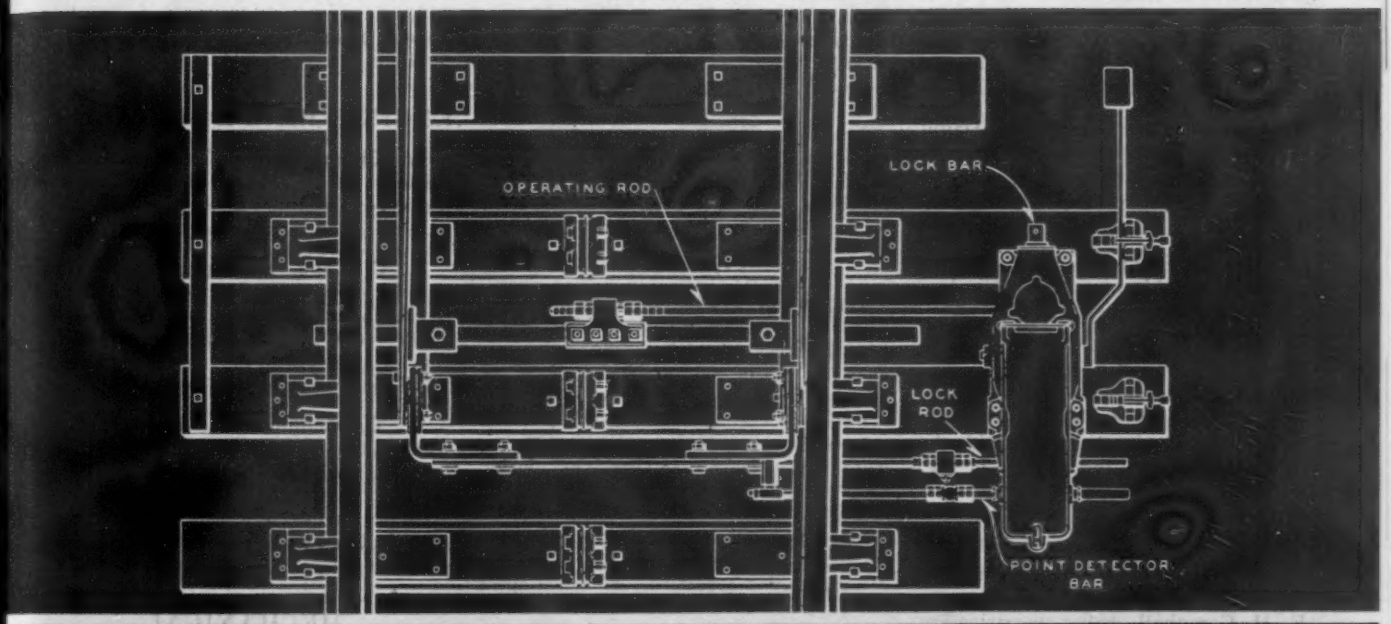
## 3. For Crossover Between Main and Side Tracks

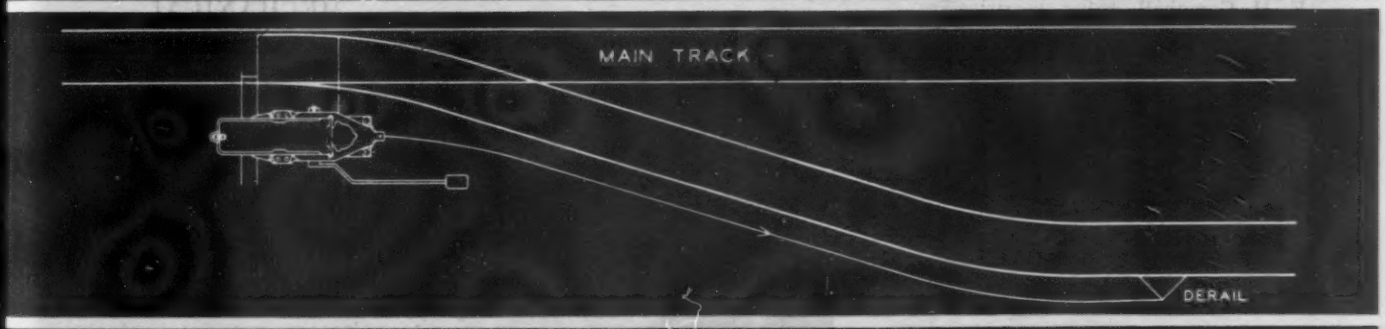
Throwing Switch Stand at A, for crossover move, withdraws the lock bar of Switch Stand B to permit its operation.

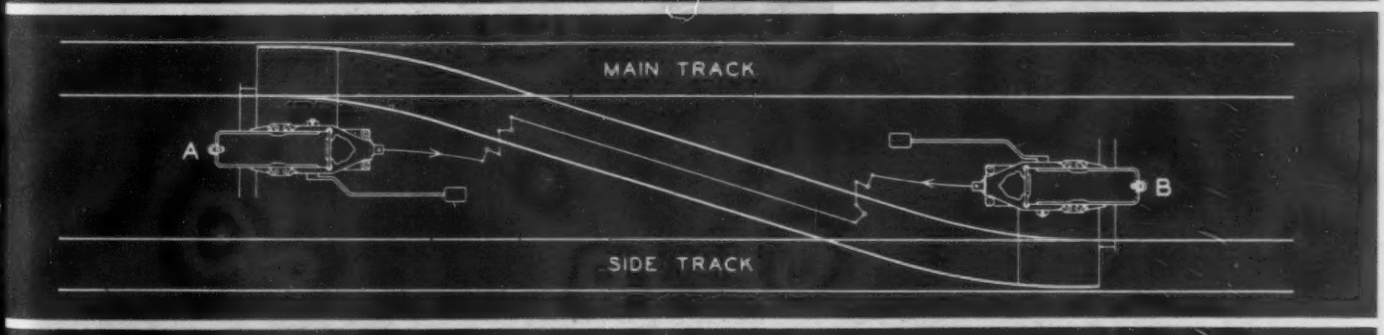
## 4. For Crossover Between Main Tracks

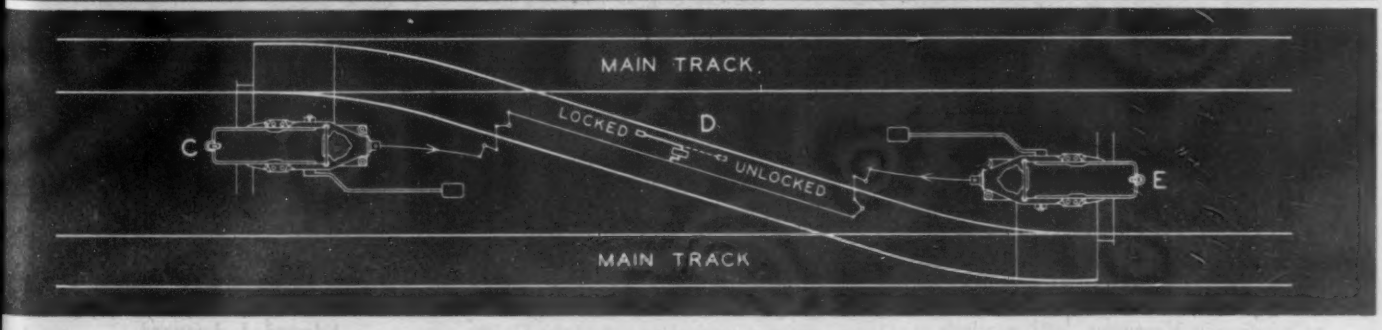
Switch Stands C and E cannot be reversed until their lock bars have been withdrawn by operation of center lever D.

# ...that fit into any layout




**UNION SWITCH & SIGNAL COMPANY**

SWISSVALE PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

road at the time it was taken over by the Milwaukee in July, 1931. In November of that year Mr. Jeffrey was appointed auditor of station accounts, with headquarters at Chicago, and on July 1, 1930, he was advanced to credit officer. On July 1, 1933, he was reappointed auditor of station accounts, and in July, 1941, he was promoted to assistant treasurer, the position he held at the time of his new appointment.

**Richard N. Clattenberg** and **David L. Wilson,** assistant solicitors of the Pennsylvania, have been appointed assistant general solicitors with headquarters at Philadelphia, Pa.

**Thomas L. Preston,** general solicitor of the Seaboard Air Line at Norfolk, Va., has been appointed assistant general counsel of the Association of American Railroads at Washington, D. C.

**John T. DeLoach,** secretary and treasurer of the Tremont & Gulf at Winnfield, La., has been appointed auditor, with the same headquarters, succeeding **J. W. Mitchell,** who has resigned. Mr. DeLoach will retain his other titles.

## OPERATING

**E. H. Campbell,** acting superintendent of the Kansas City Terminal division of the Missouri Pacific at Kansas City, Mo., has been promoted to superintendent of that division.

**William J. McWhorter,** assistant general manager of the Nashville, Chattanooga & St. Louis at Nashville, Tenn., has been promoted to acting general manager, with the same headquarters, succeeding to the duties of **Watson G. Templeton,** whose death on February 3 was reported in the *Railway Age* of February 10.

**Stephen F. Lynch,** general superintendent of transportation of the Illinois Central at Chicago, has been promoted to general manager, with the same headquarters, and **Clyde J. Fitzgerald,** superintendent of the Iowa division, with headquarters at Waterloo, Iowa, has been advanced to general superintendent of transportation, succeeding Mr. Lynch.

**F. R. Jenkins,** assistant division superintendent of the Colorado division of the Union Pacific, has been promoted to acting superintendent of that division, with headquarters as before at Denver, Colo., succeeding **J. E. Mulick,** who has been transferred to the Wyoming division with headquarters at Cheyenne, Wyo. **J. H. Darling,** who was superintendent of the Wyoming division, has been assigned to other duties.

**W. D. Post,** superintendent of agencies of the Southern at Chattanooga, Tenn., will retire on April 1 after more than 52 years of service. Mr. Post, who was born at Shelby, Ohio, on March 8, 1875, entered railroading in November, 1892, as clerk to the agent of the East Tennessee, Virginia & Georgia (now part of the Southern) at Newcomb, Tenn., and was appointed agent at Newcomb two years later. After subsequent transfers to Harriman, Tenn., Morristown, Knoxville, and Atlanta, Ga., he was named trainmaster of the Appalachian division at Bristol, Va., later serving in the same capacity on the Knoxville division at Knoxville from 1918 to 1920, when he became superintendent of the Columbia division at Columbia, S. C. In 1921 Mr. Post returned to the Knoxville division as superintendent at Knoxville, subsequently serving there as superintendent of the Coster division from 1926 to 1933, when he was transferred to the Mobile division at Selma, Ala. Mr. Post was named superintendent of agencies at Chattanooga, Tenn., in 1938, the position from which he will retire on April 1.

## TRAFFIC

**Ingram C. Bruce,** whose promotion to assistant passenger traffic manager of the Chicago, Rock Island & Pacific, with headquarters at Chicago, was reported in the *Railway Age* of March 17, was born at Mineola, Tex., on September 9, 1895, and entered railway service in 1913 with the Texas & Pacific at Longview, Tex., during summer school vacations. He held several minor positions with that road until 1917 when he enlisted in the U. S. Army air service to serve during World War I. In 1920 Mr. Bruce was appointed joint ticket agent

**Ingram C. Bruce**

at Fort Worth, Tex., of the Rock Island, the Southern Pacific and the St. Louis Southwestern. In 1921 he was appointed traveling freight and passenger agent of the Rock Island, with headquarters at San Antonio, Tex., later serving as traveling passenger agent, district passenger agent and general agent at various points of the road until June, 1939, when he was promoted to assistant general passenger agent, with headquarters at Chicago. Two years later he was advanced to general passenger agent, with the same headquarters, holding that position until his new appointment.

**Rudolf O. Lawhon** has been appointed district freight agent of the Southern, with headquarters at Laurel, Miss.

**W. W. Johns** and **H. D. DeLacy** have been appointed general agents of the Union Pacific, with headquarters respectively at Lincoln, Neb., and Long Beach, Cal.

**J. E. Carter,** assistant general freight agent of the Southern Pacific at Houston, Tex., has been promoted to general freight agent, with headquarters at New Orleans, La., succeeding **Joseph Lallande,** who has retired after nearly 50 years of service. **Harold Scherer,** chief clerk of the traffic department at New Orleans, has been advanced to assistant general freight agent, with the same headquarters, replacing **Joseph Spear,** who has been transferred to Houston where he relieves Mr. Carter.

## ENGINEERING & SIGNALING

**W. Chunn,** telephone engineer of the Missouri Pacific at St. Louis, Mo., has been promoted to assistant superintendent of telegraph, with the same headquarters.

**H. C. Land,** telegraph and telephone engineer of the Chesapeake & Ohio at Richmond, Va., has been appointed to the newly-created position of assistant superintendent, communication, with the same headquarters. His former position has been abolished.

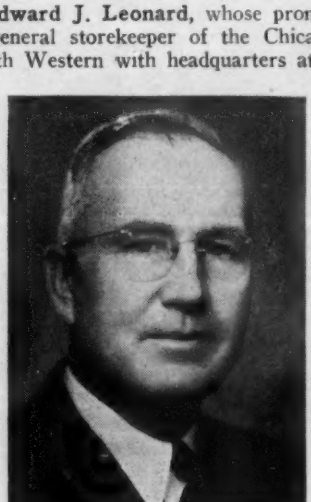
**W. G. Kemmerer,** assistant engineer in the office of the chief engineer, maintenance of way, western region of the Pennsylvania at Chicago, has been appointed assistant engineer, bridges and buildings, of the New York zone, a newly-created position, with headquarters at New York.

## MECHANICAL

**Edward C. Kaiser,** whose appointment as superintendent of motive power of the Lehigh & New England at Pen Argyl, Pa., was announced in the *Railway Age* of February 10, was born at Philadelphia, Pa., on January 20, 1899. Mr. Kaiser entered railroading in July, 1917, with the Reading, and after holding various supervisory positions he became general foreman of the Reading's engine terminal at Philadelphia, the position he held at the time of his appointment as superintendent of motive power of the Lehigh & New England.

## PURCHASES AND STORES

**Edward J. Leonard,** whose promotion to general storekeeper of the Chicago & North Western with headquarters at Chi-



**Edward J. Leonard**

cago, was announced in the *Railway Age* of March 10, was born at Clinton, Iowa, on February 9, 1890. He entered railway service with the North Western in 1906 as a clerk at Clinton, serving successively as

a stenographer, chief clerk and foreman at that point. In April, 1918, Mr. Leonard was advanced to storekeeper at Belle Plaine, Iowa. In July of that year, he was promoted to division storekeeper with headquarters at Clinton, and in 1925 he was transferred to Boone, Iowa. In 1938 he was appointed traveling storekeeper at Chicago where he served until February, 1943, when he was promoted to assistant general storekeeper, the position he held at the time of his new appointment.

## SPECIAL

**O. W. Campbell** has been appointed director of personnel of the Missouri-Kansas-Texas, with headquarters at Dallas, Tex.

## OBITUARY

**C. P. Lochridge,** general agent of the Missouri Pacific, with headquarters at Brownsville, Tex., died suddenly in that city on March 15.

**Frederick C. Schultz,** of Congress Park, Ill., a past president of the Car Foremen's Association of America, died in a Chicago hospital on March 12.

**Edward M. Grady,** comptroller and assistant secretary of the Manufacturers Junction Railway, with headquarters at Cicero, Ill., died at his home in LaGrange, Ill., on March 19.

**John Y. McLean,** director of labor relations of the Chicago, Rock Island & Pacific, with headquarters at Chicago, died in that city after a brief illness. Mr. McLean was born in Calumet, Okla., on September 19, 1893, and was graduated from Christian Brothers College, St. Louis, Mo., in 1911. His first employment was with the John Fox Construction Company of El Reno, Okla. In January, 1913, he entered railway service as a stenographer and clerk in the office of general superintendent of the Rock Island at El Reno, and subsequently served in various clerical capacities in the mechanical and operating offices at Chickasha, Okla., and El Reno. On March 1, 1918, he was chosen general chairman of the Brotherhood of Railroad Clerks when it was first organized on the Rock Island. In 1935 Mr. McLean was also elected international vice-president of the Brotherhood of Railway Clerks. He resigned from the B. of R. C. in 1941 to accept the position he held at the time of his passing.

**Felix S. McGinnis,** vice-president in charge of system passenger traffic of the Southern Pacific, with headquarters at San Francisco, Cal., died at that city on March 17. Mr. McGinnis was born at Los Angeles, Cal., on January 25, 1883, and entered railway service at the age of 17 years as an office boy in the Southern Pacific freight station in that city. During the following 15 years he successively filled the positions of Pullman clerk, ticket clerk and cashier in the city ticket office, city passenger agent at Los Angeles, commercial agent at Pasadena, Cal., and district passenger agent at Los Angeles. In April, 1915, he was promoted to general passenger agent, with

**Felix S. McGinnis**

headquarters at the same point, being further promoted to assistant passenger traffic manager at Los Angeles in August, 1923. Mr. McGinnis was promoted to passenger traffic manager, with headquarters at San Francisco, in July, 1925, and in November, 1929, he was advanced to the position he held at the time of his death.

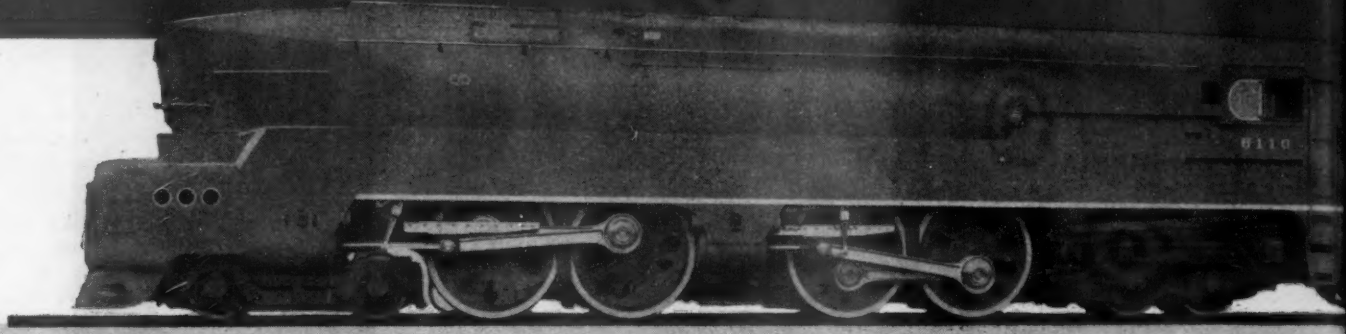
## Operating Revenues and Operating Expenses of Class I Steam Railways

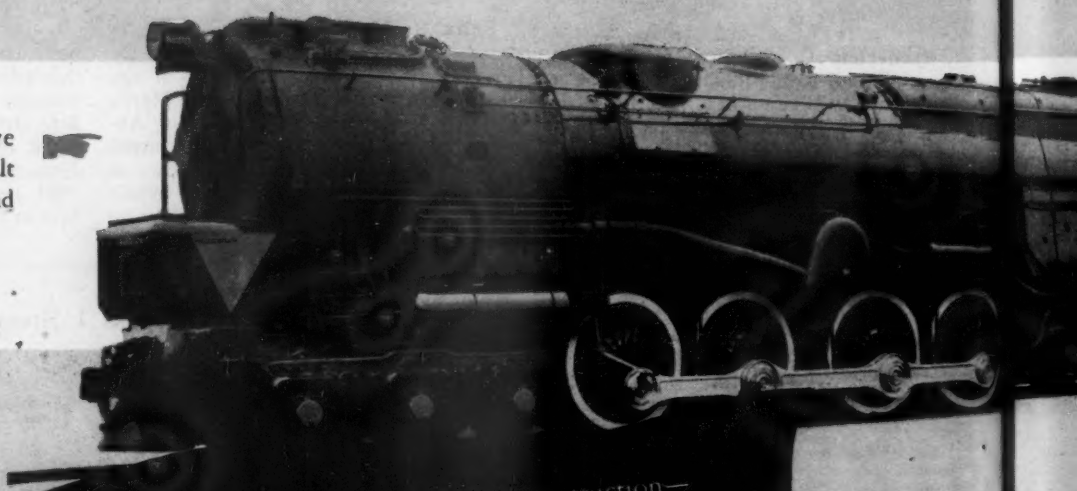
*(Switching and Terminal Companies Not Included)*
FOR THE MONTH OF JANUARY, 1945 AND 1944

| Item | United States | | Eastern District | | Southern District | | Western District | |
|---|---|---|---|---|---|---|---|---|
| | 1945 | 1944 | 1945 | 1944 | 1945 | 1944 | 1945 | 1944 |
| Miles of road operated at close of month | 228,561 | 228,858 | 56,021 | 56,123 | 43,338 | 43,388 | 129,202 | 129,347 |
| Revenues: | | | | | | | | |
| Freight | $558,874,316 | $548,418,809 | $200,436,157 | $212,724,376 | $113,497,863 | $108,629,176 | $244,940,296 | $227,065,257 |
| Passenger | 139,243,068 | 140,114,786 | 56,802,175 | 54,911,015 | 27,780,796 | 28,889,911 | 54,660,097 | 56,313,860 |
| Mail | 11,067,177 | 10,328,468 | 3,602,445 | 3,412,847 | 1,923,346 | 1,901,454 | 5,541,386 | 5,014,167 |
| Express | 12,065,591 | 13,248,932 | 3,364,916 | 4,656,347 | 1,876,651 | 2,148,293 | 6,824,024 | 6,444,292 |
| All other operating revenues | 30,086,619 | 28,560,736 | 13,204,881 | 12,670,814 | 4,483,335 | 4,119,587 | 12,398,403 | 11,770,335 |
| Railway operating revenues | ‡751,336,771 | ‡740,671,731 | 277,410,574 | 288,375,399 | 149,561,991 | 145,688,421 | 324,364,206 | 306,607,911 |
| Expenses: | | | | | | | | |
| Maintenance of way and structures | 97,121,305 | 89,503,248 | 36,857,725 | 34,761,319 | 17,970,119 | 16,048,475 | 42,293,461 | 38,693,454 |
| Depreciation | 9,585,170 | 8,812,374 | 4,206,032 | 3,807,207 | 1,522,887 | 1,459,628 | 3,856,251 | 3,545,539 |
| Retirements | 353,815 | 471,072 | 79,301 | 204,039 | 54,441 | 81,914 | 220,073 | 185,119 |
| Deferred maintenance | *236,335 | *264,097 | *31,286 | 1,204 | ..... | ..... | *205,049 | *265,301 |
| Amortization of defense projects | 2,110,780 | 1,295,307 | 609,815 | 435,215 | 358,243 | 233,818 | 1,142,722 | 626,274 |
| Equalization | 5,598,656 | 6,475,622 | 2,992,443 | 3,563,027 | 1,387,641 | 1,136,537 | 1,218,572 | 1,776,058 |
| All other | 79,709,219 | 72,712,970 | 29,001,420 | 26,750,627 | 14,646,907 | 13,136,578 | 36,060,892 | 32,825,765 |
| Maintenance of equipment | 137,223,300 | 129,179,685 | 55,783,057 | 54,639,397 | 25,985,343 | 23,686,255 | 55,454,900 | 50,854,033 |
| Depreciation | 17,819,517 | 17,793,036 | 7,508,582 | 7,481,736 | 3,580,381 | 3,620,964 | 6,730,554 | 6,690,336 |
| Extraordinary retirements | *13,528 | ..... | *5,271 | ..... | *4,849 | ..... | *3,408 | ..... |
| Deferred maintenance and major repairs | *141,600 | 19,343 | ..... | ..... | ..... | ..... | *141,600 | 19,343 |
| Amortization of defense projects | 16,784,010 | 11,782,742 | 5,527,503 | 3,964,860 | 3,991,421 | 2,923,625 | 7,265,086 | 4,894,257 |
| Equalization | 161,771 | 17,142 | *2,806 | 12,803 | 125,402 | *17,229 | 39,175 | 21,568 |
| All other | 102,613,130 | 99,567,422 | 42,755,049 | 43,179,998 | 18,292,988 | 17,158,895 | 41,565,093 | 39,228,529 |
| Traffic | 11,467,544 | 11,066,911 | 4,027,187 | 4,012,985 | 2,189,870 | 2,084,330 | 5,250,487 | 4,969,596 |
| Transportation—Rail line | 256,932,422 | 248,250,065 | 114,928,481 | 111,953,330 | 43,854,909 | 42,213,722 | 98,149,032 | 94,083,013 |
| Transportation—Water line | 82 | 275 | ..... | ..... | ..... | ..... | 82 | 275 |
| Miscellaneous operations | 10,225,839 | 9,530,658 | 3,819,811 | 3,444,808 | 1,691,914 | 1,515,114 | 4,714,114 | 4,570,736 |
| General | 17,261,693 | 16,482,231 | 6,991,804 | 6,656,564 | 3,307,898 | 3,200,509 | 6,961,991 | 6,625,158 |
| Railway operating expenses | 530,232,185 | 504,013,073 | 222,408,065 | 215,468,403 | 95,000,053 | 88,748,405 | 212,824,067 | 199,796,265 |
| Net revenue from railway operations | 221,104,586 | 236,658,658 | 55,002,509 | 72,906,996 | 54,561,938 | 56,940,016 | 111,540,139 | 106,811,646 |
| Railway tax accruals | 133,707,228 | 136,795,411 | 30,457,625 | 37,039,182 | 34,753,114 | 35,633,032 | 68,496,489 | 64,123,197 |
| Pay-roll taxes | 19,472,236 | 18,734,604 | 8,221,719 | 8,041,522 | 3,388,804 | 3,228,500 | 7,861,713 | 7,464,582 |
| Federal income taxes† | 90,287,019 | 93,761,082 | 12,659,198 | 18,963,270 | 26,263,943 | 27,271,212 | 51,363,878 | 47,526,600 |
| All other taxes | 23,947,973 | 24,299,725 | 9,576,708 | 10,034,390 | 5,100,367 | 5,133,320 | 9,270,898 | 9,132,015 |
| Railway operating income | 87,397,358 | 99,863,247 | 24,544,884 | 35,867,814 | 19,808,824 | 21,306,984 | 43,043,650 | 42,688,449 |
| Equipment rents—Dr. balance | 11,091,991 | 11,377,020 | 5,013,070 | 5,103,599 | 202,711 | 676,336 | 5,876,210 | 5,597,085 |
| Joint facility rent—Dr. balance | 3,289,308 | 3,488,258 | 1,740,608 | 1,751,935 | 292,285 | 411,235 | 1,256,415 | 1,325,088 |
| Net railway operating income | 73,016,059 | 84,997,969 | 17,791,206 | 29,012,280 | 19,313,828 | 20,219,413 | 35,911,025 | 35,766,276 |
| Ratio of expenses to revenues (per cent) | 70.6 | 68.0 | 80.2 | 74.7 | 63.5 | 60.9 | 65.6 | 65.2 |

* Decrease, deficit, or other reverse items.
† Includes income tax, surtax, and excess-profits tax.
‡ Railway operating revenues are after deduction of $2,790,467 for January 1945, and $3,303,759 for January 1944 to create a reserve for land grant deductions in dispute.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

# AMERICA'S NEWEST STEAM





America's first direct-drive steam turbine locomotive, built by Baldwin with turbines and gears by Westinghouse.

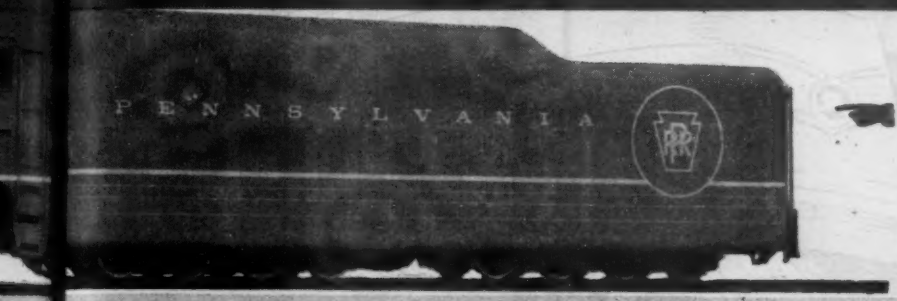
There is nothing static about locomotive design and construction—and this goes for all types—steam, diesel-electric, electric, and others still to come. Constant research on the part of the locomotive builder and the railroads is taking care of that.

The new and improved locomotives now coming from the Baldwin shops are tangible evidence of this constant progress in the locomotive art—leading to higher efficiencies, greater availability, and lower operating and maintenance costs.

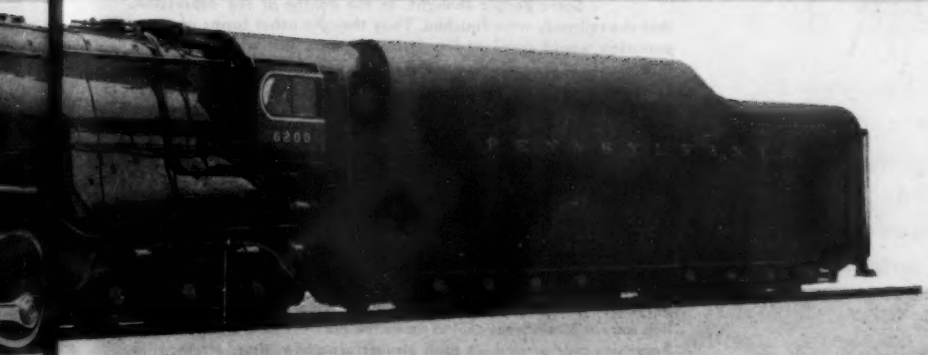
Our engineering staff will welcome the opportunity to study your motive power problems and advise you how these new locomotive types may be of service. The Baldwin Locomotive Works, Locomotive and Ordnance Division, Philadelphia, Pa. Offices: Philadelphia, New York, Chicago, Washington, Boston, Cleveland, Detroit, St. Louis, San Francisco, Houston, Pittsburgh.

**BALDWIN SERVES THE NATION WHICH THE RAILROADS HELPED TO BUILD**

# M AND DIESEL LOCOMOTIVES




Four-cylinder Duplex locomotive, offering improved performance at all speeds with outstanding advantages at high speeds.



Baldwin-Westinghouse, 2000-hp. diesel-electric locomotive—the newest thing in the diesel field for main line service.


# BALDWIN

## LOCOMOTIVES

**BALDWIN PRODUCTS FOR THE RAILROADS — Steam, diesel-electric and electric locomotives, Diesel engines, Hydraulic presses, Special railroad shop equipment, Testing machines and instruments, Steel tires and rolled steel wheels, Crane wheels, Connecting rods and other steel forgings, Steel castings, Springs, Metal plate fabrication, Boilers, Non-ferrous castings, Bending rolls, Plate planers, Dynamometer cars**

BLW THE BALDWIN GROUP

# COAL POWERS THE.. IRON HORSE

FOR MORE than a century the railroads have been the arteries of America's economic life. The Conestoga wagon is symbolic of pioneer America, but it was not until the railroads threaded their way across the western plains and completed the bridge of steel between the Atlantic and the Pacific that the development of our nation on a grand scale became possible.

Some people thought, in the depths of the depression, that the railroads were finished. They thought other forms of transportation would supplant the "Iron Horse." But where are those rash prophets today? Where would America and her Allies have been today without the railroads? Contrast the magnificent job that the railroads have performed in this war with the sorry tangle in which they became involved after the government "took them over" during World War I. And consider that the job this time was done with only two-thirds the locomotives, three-fourths the freight and passenger cars and three-fourths the employes they had in 1918!

COAL powers the Iron Horse. In fact, more coal is burned to generate locomotive power than for any other single industrial purpose. Last year the railroads of America consumed 132 million tons of bituminous coal to move the greatest total of freight and humanity ever carried—a total almost double that attained in World War I days.

The ties between railroads and coal are unusually close in West Virginia. They are industries peculiarly inter-dependent. Approximately 20% of West Virginia's entire output of bituminous coal went to feed the Iron Horse. And the railroads, in turn, received freight revenues of nearly $400,000,000 for hauling coal which originated in West Virginia's hills.

CONSTANT research and close collaboration between coal producers, railroads and locomotive manufacturers have made the modern coal-burning locomotive the most efficient transportation mechanism of all time. With it American railroads are able to haul anything and everything, at any time and in any kind of weather, at an average cost to the shipper of less than a penny per ton mile—a cost not approached by any other existing form of transportation.

The railroads are West Virginia's biggest industry's best customer. West Virginians should bear that in mind. Generally speaking, anything that helps the railroads helps the mining industry. And What Helps Coal Helps You!

WHAT HELPS COAL HELPS YOU

## LOGAN COAL OPERATORS Association

Logan, W. Va.

**Domestic Users Be Patriotic**
**Conserve Coal Now!**

**All Americans Buy War Bonds ALL THE TIME!**

The Logan Coal Operators Association is a non-profit organization which seeks to raise the standards of the industry and to protect its members and its members' employes against the hazards of unemployment and ruinous competition. The Association believes that West Virginians have a right to know the facts about the State's "biggest cash crop." This advertisement is No. 61 in a series designed to prove to every reader of this publication that "What Helps Coal Helps You!"

# GET TOGETHER DEPARTMENT

**Educational Services for RAILROAD MEN**

Our New Service on Diesel Locomotive Operation is highly recommended for Engineers and Firemen

*The Railway Educational Bureau*
*Omaha 2, Nebraska*

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*GET OUR PRICES FIRST*

**RAILWAY EQUIPMENT** *and* ACCESSORIES

SPECIAL: Locomotives: 4 Plymouth, 3 ton locomotives, 36" gauge, type 2
Model AL, good condition.
Located at K. C.
Also 3 150 HP Walsh-Weidner boilers.
We can furnish rails, spikes, bolts, angle bars, cranes and other railway material. Machines, motors, pumps, etc.
*Write, wire or phone inquiries*
**Sonken-Galamba Corp.**
Kansas City 18, Kans.

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**EXCEPTIONAL OFFERINGS IN LOCOMOTIVES**

CONSOLIDATIONS

114 ton Americans. Cyls. 23 x 30". Completely rebuilt 1929. 210# pressure. Tractive effort 50,600#. In exceptionally fine condition. Immediate delivery.

MIKADOS

181 ton Americans. Cyls. 28 x 32". New 1924. 200# pressure. Tractive effort 67,760#. (plus 11,500# for boosters). Total tractive effort 79,200#. Will rebuild for quick delivery.

SANTA FE'S

189 ton Americans. Cyls. 29 x 32". New 1920. 190# pressure. Tractive effort 71,300#. Will rebuild for quick delivery.

TYPE 2-8-4

293 tons Limas. Cyls. 27½ x 30". New 1928. Pressure 240#. Tractive effort 66,550 lbs. (plus 12,000# for boosters.) Total tractive effort 78,550#. Completely rebuilt. Immediate delivery.

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Relaying Rails All Sizes
Railroad Cars
Locomotives and Equipment
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Kansas City 18, Kans.

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# Freight Car Prices REDUCED!

**Now Only Half of Recent Peak Prices—**
**$500 to $4250 Each!**

40, Hopper, Triple, 50-Ton
50, Hopper, Side Discarge, 50-Ton
80, Refrigerator, 40-Ft., 40-Ton
16, Refrigerator, 40-Ft., 40-Ton
75, Box, 40-Ft., 40-Ton
9, Dump, Western, Automatic, 30-Yd., 50-Ton; Lift Doors
10, Dump, Magor, Automatic, 30-Yd., 50-Ton; Lift Doors
25, Dump, Koppel, Automatic, 20-Yd., 40-Ton; Lift Doors
4, Dump, Western, 20-Yd., 40 & 50-Ton
1, Dump, Koppel Drop Door, 20-Yd., 40-Ton; Steel Door
20, Flat, 40-Ft., 50-Ton
70, Gondola, All Steel, 40-Ft., 16 Drop Door
6, Gondola, Steel, 50-Ton, High Side
30, Tank, 8000-Gallon, 40-Ton

**All cars are priced to sell!**
**IRON & STEEL PRODUCTS, INC.**
40 years' experience
**13486 S. Brainard Ave.** **Chicago 33, Illinois**
*"ANYTHING containing IRON or STEEL"*

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*Purchasing Agents*

**We are an old established drop forging plant confined strictly to war production, but now becoming available for general commercial drop forgings.**

**We will appreciate your inquiries.**

**BALDT ANCHOR, CHAIN & FORGE COMPANY**
CHESTER, PA.

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**FOR SALE**
IMMEDIATE DELIVERY
72 Cells A-6-H Edison
Train Lighting Batteries
*No Priority*
IRON & STEEL PRODUCTS, INC.
40 years' experience
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**POSITION OPEN**

CHIEF ENGINEER: preferably with railroad background; capable man with thorough technical training, experienced in modern foundry and machine shop practice, who can organize and systematize his department. Excellent opportunity with a prominent and stable steel castings producer. Write, giving full details, to BOX 733, RAILWAY AGE, 30 CHURCH STREET, NEW YORK, 7, N. Y.

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**POSITION OPEN**

ESTIMATOR, thoroughly qualified by experience to handle both machine shop and steel foundry estimates accurately and dependably. Apply by letter, including full information on your background. ADDRESS BOX 734, 30 CHURCH STREET NEW YORK, 7, N. Y.

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GENERAL FOUNDRY SUPERVISOR experienced and practical, both in jobbing and railroad work, wanted by leading manufacturer of steel castings. Position requires tactful, energetic man with ability to plan and capacity for detail. Write, covering experience fully, to BOX 732, RAILWAY AGE, 30 CHURCH STREET, NEW YORK, 7, N. Y.

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Relaying Rails ★ ★ ★ Dismantling

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**Freight Car Replacement Parts**

Complete stocks of guaranteed used freight car parts carried on hand by us at all times. Located conveniently for shipment to any part of country. Write — Phone — Wire — when interested in used Rails, Equipment, Cars, Car or Track Dismantling, or Car Parts.

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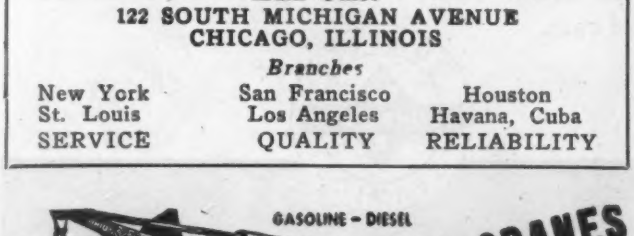


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*Your*
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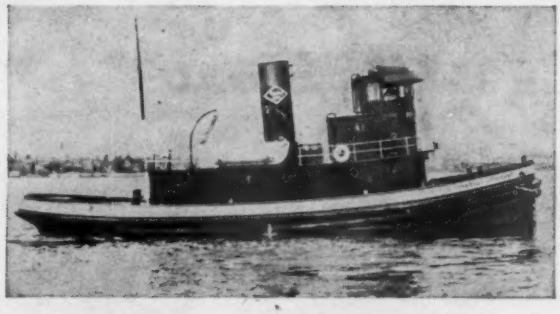
SHOULD
FIGHT!



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and to make prompt deliveries. Our facilities include from design to delivery.

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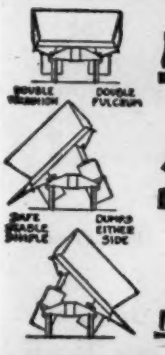


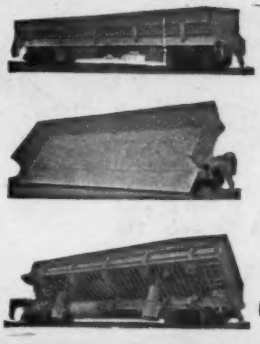

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## INCREASED PASSENGER COMFORT

*Steam Couplers* A.R.A. STANDARD
*Flexible Conduits* REPLACES RUBBER HOSE
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# MODERN

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*COACHES CLUB CARS STATIONS*
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We welcome inquiries relative to
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Railway Division, Dixie Cup Co., Easton, Pa.


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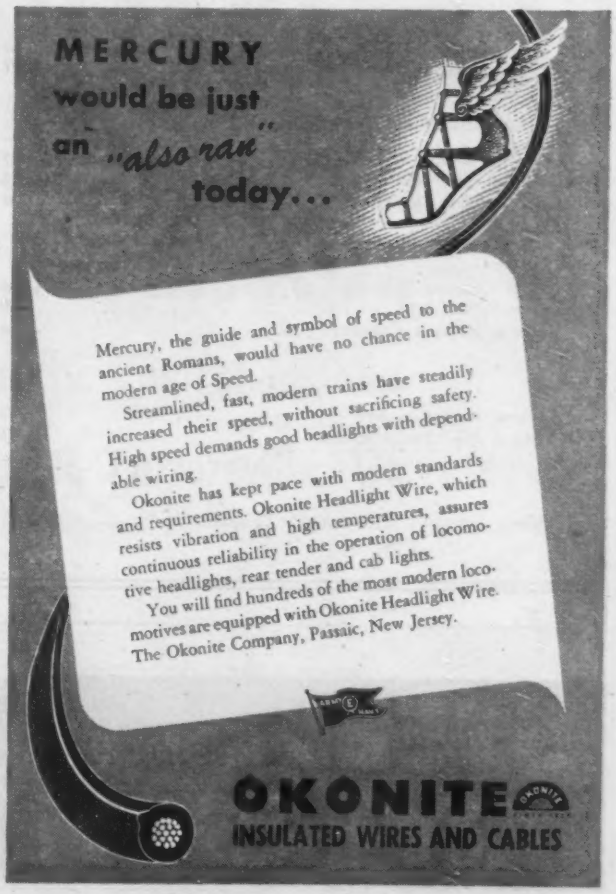

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## March 24, 1945


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